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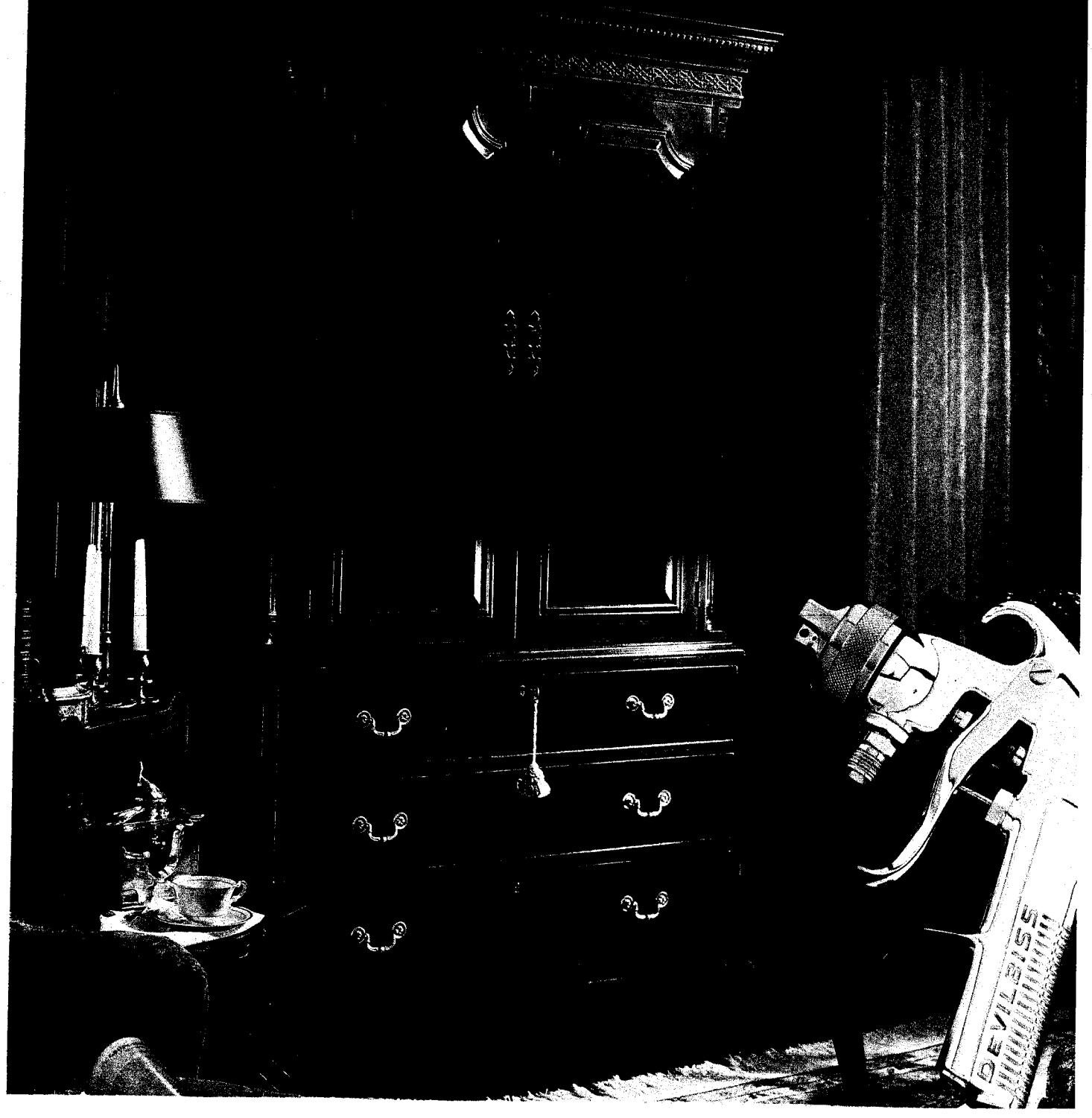
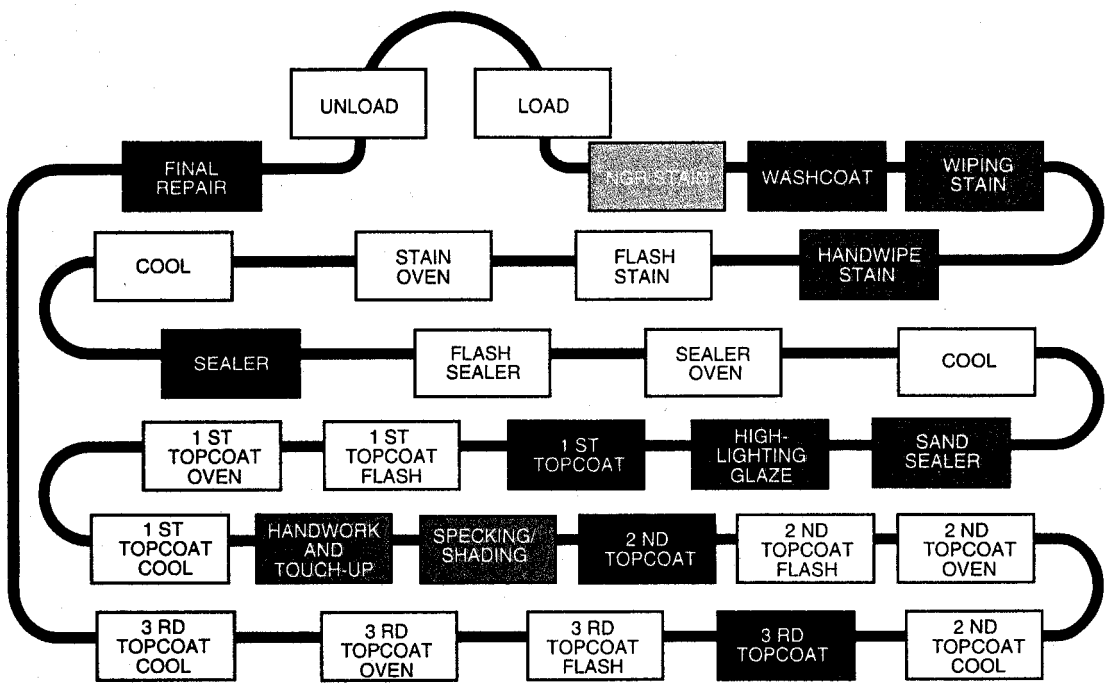
Wood Furniture Finishing Equipment Guide



Contents

INTRODUCTION	1
SAP, TONER, AND OVERALL STAIN	2
WASHCOAT AND SEALER	3
WIPING STAINS	4
HIGHLIGHTING GLAZE	5
TOPCOAT LACQUER	6
SPECKING AND SHADING	7
REPAIR	8
GUNS AND ACCESSORIES	9
TANKS and CUPS	10
PRESSURE TANKS and SOLVENT SAVER	11-12
HOSE SELECTION, ASSEMBLIES AND CONNECTIONS	13-14
CLEAN AIR™ AIR CONTROL UNITS	15
TROUBLESHOOTING	16

Typical Furniture Finishing System



Photos on Cover, pages 3,4 and 7 courtesy of Henredon Furniture Industries; Morganton, North Carolina.
Photos on page 6 and 8 courtesy of Thomasville Furniture; Thomasville, North Carolina.

Introduction

Selecting the Right Finishing System for the Job

Matching the finishing system to the job allows you to achieve a professional finish with a minimum of time and cost. Finishing system selection is influenced by factors such as finish quality, transfer efficiency, line speed, part size, material and equipment use, and government standards. Careful evaluation of all these variables is needed when selecting a finishing system.

This guide will help you select the guns, cups, hoses, material containers and accessories that are right for your wood finishing operation. Begin the selection process by comparing the two systems most commonly used in wood finishing, conventional air spray and HVLP (High Volume Low Pressure).

Weigh the Benefits of Conventional Air Spray and HVLP

Conventional air spray and High Volume Low Pressure (HVLP) spray are both low pressure systems, so expensive, airless, high pressure supply equipment and components are not required. Airless systems that use smaller than .017" nozzles are prone to plugging, which causes rejects and down time. Additionally, safety is not an issue with low pressure equipment because there is no danger of skin penetration by high pressure hydraulic nozzles.

HVLP is most often compared with conventional air spray. While both systems use compressed air for atomization, the difference lies in the transfer efficiency of each system. Transfer efficiency can be defined as the amount of material sprayed that goes onto the part as compared to the amount lost to overspray and bounceback.

HVLP atomization uses a high volume of air delivered at 10 psi or less to atomize fluid material into a soft, low velocity pattern. Since conventional air spray pressures are limited only by available plant air supply, it is not uncommon to see atomizing air pressures of 40 to 70 psi. HVLP's lower pressure results in a more controlled spray pattern, less bounceback and enhanced transfer efficiency. The higher pressure of conventional air spray produces typical transfer efficiency of only 25-35% with increased overspray and bounceback. **Depending on the application, 3/4 of every gallon of material sprayed by conventional methods can be lost to overspray.** With HVLP, as little as one pint per gallon is lost. Air spray, on the other hand, has been the most commonly used method for atomizing the full range of materials into the finest finish possible. Recent technology changes have greatly improved HVLP's ability to atomize higher solids materials and/or higher fluid flows, with special air cap, fluid tip and baffle combinations designed for this purpose—DeVilbiss Ransburg's "Maximum Performers".

A side benefit—HVLP guns typically produce less noise than air spray guns because of the greatly reduced atomization pressure required.

HVLP's high transfer efficiency improves both productivity and finish quality. Less overspray allows better visibility, so the operator makes fewer errors. It also reduces overspray on nearby surfaces, which decreases finish flaws. HVLP also decreases the amount of material used, which reduces spray booth maintenance, filter replacement, waste disposal and material costs.

DeVilbiss Ransburg Sets the Industry Standard

Whether you select a conventional air spray or an HVLP system, DeVilbiss Ransburg sets the standard for quality, performance, reliability and product support within the wood finishing industry.

In keeping with our 100-year tradition of leadership in the development of innovative spray finishing technologies, DeVilbiss Ransburg has been the leader in the manufacture of air spray guns and has been instrumental in advancing the state of HVLP atomization.

Since the success of your wood finishing operation can rest on the equipment you select and the company that supports it, choose the equipment that delivers high quality results, consistently reliable performance and the durability and flexibility to maximize your production output. Choose DeVilbiss Ransburg.

Products and Support for the Furniture Industry

DeVilbiss Ransburg is the largest industrial finishing equipment manufacturer in the wood furniture finishing market. Our product line includes spray guns, cups, tanks, hoses, and accessories that are readily available through our ***Diamond Partners and other industrial distributors.***

We would like to thank Air Power Inc. for their assistance in the preparation of the DeVilbiss Ransburg Wood Furniture Finishing Equipment Guide. We would also like to thank AKZO - Reliance Coatings Division and Lilly Industrial Coatings, Inc., both manufacturers of complete finishing coating systems, for their valuable input.

Sap, Toner, and Overall Stain

The application of sap stain, toner and overall stain establishes the base color of the wood in preparation for the final finish.

Sapping and Toning

Sapping, or the application of sap stain, evens out the color variations in wood pieces. Sap stain is generally used on lighter areas of wood to darken it and bring its color closer to average. In many cases, special saps are needed to blend a variety of woods together in the same piece.

When done correctly, sapping equalizes and blends the wood colors, giving the finished piece better overall appearance and color. When sap stain is applied incorrectly, it can magnify variations in wood color, as well as produce a muddy finish. Building good habits in operator technique helps the end result remain consistent.

After the sapping operation, a toner is applied to modify the color before the application of the overall stain.

Overall Stain

The overall stain establishes the undertone color of the piece. Consistent stain application is the most important factor in this step. On faster production lines, two spray operators are used to insure better uniformity. Care should be taken to insure that both operators' spray techniques are the same. If a new or unusual stain is applied, have the supplier work with the operators to achieve a consistent finish. An operator may need to change spray techniques when using a different material.

For lacquered or painted furniture, tinted lacquer or enamel finish can be applied in these booths in place of sap, toner and overall stain.

Common Terms

The following list are terms commonly used in sapping, toning and overall staining operations.

- Smooth Coat Stain
- Non-Grain Raising (NGR)
- Toner
- Blow-up
- Equalizer
- Overall Stain
- Sap
- Thin Stain
- Shading

Equipment Requirements

When spraying sap, toner or overall stain, the typical fluid delivery rates range between 4 and 10 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- Air Spray Guns
  - JGV-570-705 FX (.042") For Larger Pattern Size
  - MSA-501-704L FX (.042") For Larger Pattern Size
  - MSA-501-35L FX (.042") For Smaller Pattern Size
- HVLP Guns
  - JGHV-5285-FX (.042")
  - MSV-528-4-FX (.042")

Equipment specifications and diagrams are on a separate fold-out found in the back pocket of this booklet. Refer to Diagram A for additional information on typical set-ups and flow ranges.

We recommend the following to achieve the finest finish quality when spraying during sapping, toning and staining operations:

- CleanAir™ Air Control Unit (Choose one)
  - HFRL-509, centrifugal, 2 regulated, 1 main, 80 CFM
  - HFRL-512, centrifugal/coalescer 2 regulated, 1 main, 80 CFM

  See page 15 for other models.
- Air Hose (Specify Length)
  - H-1921 5/16" I.D. Smooth Cover or H-1901 5/16" I.D. Corrugated Cover with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
- Fluid Hose (Specify Length)
  - ***For Solventborne Finishes:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three-piece reusable fitting.
  - ***For Waterborne Materials:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (F) three-piece reusable stainless steel swivel fitting.
- Pressure Tank (Specify Capacity)
  - ***For Solventborne Finishes:*** QMGT Galvanized Tank (ASME Code) with or without QS-5012 Rotary Agitator or PT Zinc Plated (Non-Code) 2-1/2 gallon tank with or without Agitator.
  - ***For Waterborne/Corrosive Materials*** QMST Stainless Steel (ASME Code) Tank with QSR-503 Reciprocating Agitator and QMS-4010 Extra Sensitive Fluid Regulator.
- Respirator (size medium)
  - MSP-521 Dual Cartridge half-mask silicone respirator
  - MSP-511 Dual Cartridge half-mask rubber respirator
  - MSP-540 Air supplied half-mask silicone respirator

  Also available in small and large sizes.

See pages 9 to 15 for further information on this finishing equipment.

Typical Furniture Finishing Setups

Refer to the foldout found in the back pocket of this booklet for diagrams of typical furniture finishing setups:

- Solventborne System with QMGT Code Tank (see Diagram B)
- Waterborne System with QMST Code Tank (see Diagram C)

Operating Tips

Operating an HVLP spray gun differs very little from operating a conventional air spray gun. Here are a few guidelines to keep in mind:

- Due to HVLP's higher transfer efficiency, the fluid flow rate must be lowered. Start with 15-25% less than with a conventional gun.
- Slower fluid flow particle velocity requires that the gun be held six to eight inches from the target, compared to the 10 to 12 inch distance for conventional guns.
- Sap, toner and overall stain procedures require similar maintenance on both HVLP and air spray guns. Some general operating tips include:
- Check flow rates daily.
- Clean build-up from gun tip and air caps as required.
- Do not use ball or needle valves to adjust air pressure. Use regulator.
- Always use the lowest fluid and air pressure possible by adjusting the fluid regulators or pot pressure.
- Lubricate gun daily.
- Before production spraying, test for atomization quality, pattern shape, pattern uniformity and proper shade or color desired.
- Stainless steel equipment recommended for all NGR stains.
- Aluminum wetted parts are not recommended.

Washcoat and Sealer

The washcoat and sealer operations seal the stain and provide a base for later steps in the finishing process.

Consistent spray operations are essential when applying washcoat and sealer. The coats must be even. Missed areas and streaks show up darker, especially on softer woods.

Equipment Requirements

With washcoat or sealer, the typical fluid delivery rates range between 10 and 30 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- Air Spray
  - JGV-570-704 FF (.055")
  - MSA-501-704L FF (.055")
- HVLP
  - JGHV-5465-FF (.055")
  - MSV-546-4-FF (.055")

Equipment specifications and diagrams are included on a separate fold-out found in the back pocket of this booklet. Refer to Diagram A for additional information on typical gun set-ups for various fluid flow ranges.

To achieve the finest finish quality when spraying during washcoat and sealer operations, we recommend the following:

- CleanAir™ Air Control Unit (Choose one)
  - HFRL-509, centrifugal, 2 regulated, 1 main, 80 CFM
  - HFRL-512, centrifugal/coalescer 2 regulated, 1 main, 80 CFM

  See page 15 for other models.
- Air Hose (Specify Length)
  - H-1921 5/16" I.D. Smooth Cover or H-1901 5/16" I.D. Corrugated Cover with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
- Fluid Hose (Specify Length)
  - ***For Solventborne Finishes:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three-piece reusable fitting.
  - ***For Waterborne Materials:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (F) three-piece reusable stainless steel swivel fitting.
- Pressure Tank (Specify Capacity)
  - ***For Solventborne Finishes:*** QMGT Galvanized Tank (ASME Code) with or without QS-5012 Rotary Agitator or PT Zinc Plated (Non-Code) 2-1/2 gallon tank with or without Agitator.
  - ***For Waterborne/Corrosive Materials:*** QMST Stainless Steel (ASME Code) Tank with QSR-503 Reciprocating Agitator and QMS-4010 Extra Sensitive Fluid Regulator.
- Respirator (size medium)
  - MSP-521 Dual Cartridge half-mask silicone respirator
  - MSP-511 Dual Cartridge half-mask rubber respirator
  - MSP-540 Air supplied half-mask silicone respirator

  Also available in small and large sizes.

See pages 9 to 15 for further information on this finishing equipment.

Typical Furniture Finishing Setups

Refer to the foldout found in the back pocket of this booklet for diagrams of typical furniture finishing setups:

- Solventborne System with QMGT Code Tank (see Diagram B)
- Waterborne System with QMST Code Tank (see Diagram C)

Operating Tips

Operating an HVLP spray gun differs very little from operating a conventional air spray gun. Here are a few guidelines to keep in mind:

- Due to HVLP's higher transfer efficiency, the fluid flow rate must be lowered. Start with 15-25% less than with a conventional gun.
- Slower particle velocity requires that the gun be held six to eight inches from the target, compared to the 10 to 12 inch distance for conventional guns.
- Washcoat and sealer procedures require similar maintenance on both HVLP and air spray guns. Some general operating tips include:
  - Check flow rates daily.
  - Clean build-up from gun tips and air caps as required.
  - Do not use ball or needle valves to adjust air pressure. Use regulators.
  - Always use the lowest fluid and air pressure possible.
  - Lubricate gun daily.
  - Before production spraying, test for atomization quality, pattern shape, and pattern uniformity.
  - Use "Solvent Saver" hose and gun cleaner to purge all catalyzed material from fluid system before pot life runs out. See page 12.
  - Stainless steel equipment should be used for all catalyzed and waterborne finishes.

Wiping Stains

Wiping stains provide another layer of color. These stains also color the pores in open grain woods. The wipecoat should be applied liberally to prevent "white" shadows.

Care should be taken to cover all areas that will show such as mirror grooves, bookcase mirror backs and the underside of shelves.

Common Terms

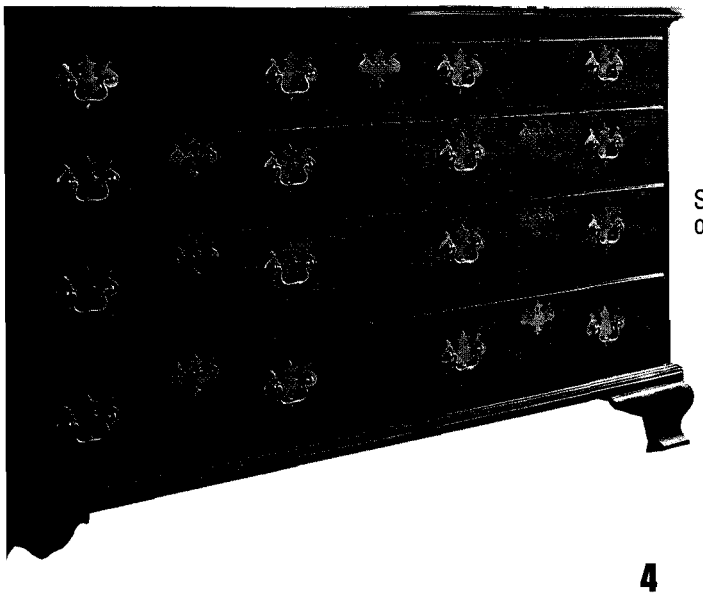
The following terms are commonly used when referring to wiping stains.

- Combination Stain
- Filler
- Fill Glaze

Equipment Requirements

With wiping stains, the typical fluid delivery rates range between 16 and 26 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- Air Spray
  - •JGV-570-704 FF (.055")
  - •MSA-501-704L FF (.055")
- HVLP
  - •JGHV-5285-FF (.055") for lower fluid flow rate
  - •JGHV-5465-FF (.055") for higher flow rate
  - •MSV-528-4-FF (.055") for lower fluid flow rate
  - •MSV-546-4-FF (.055") for higher flow rate



Equipment specifications and diagrams are included on a separate fold-out found in the back pocket of this booklet. Refer to Diagram A for additional information on typical gun set-ups and fluid flow ranges.

To achieve the finest finish quality when spraying during wiping operations we recommend the following:

- CleanAir™ Air Control Unit (Choose one)
  - HFRL-509, centrifugal, 2 regulated, 1 main, 80 CFM
  - HFRL-512, centrifugal/coalescer 2 regulated, 1 main, 80 CFM

  See page 15 for other models.
- Air Hose (Specify Length)
  - H-1921 5/16" I.D. Smooth Cover or H-1901 5/16" I.D. Corrugated Cover with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
- Fluid Hose (Specify Length)
  - ***For Solventborne Material:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three piece reusable fitting.
  - ***For Waterborne Materials:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (F) three-piece reusable stainless steel swivel fitting.
- Pressure Tank (Specify Capacity)
  - ***For Solventborne Finishes:*** QMGT Galvanized Tank (ASME Code) with or without QS-5012 Rotary Agitator or PT Zinc Plated (Non-Code) 2-1/2 gallon tank with or without Agitator.
  - ***For Waterborne Materials:*** QMST Stainless Steel (ASME Code) Tank with QSR-503 Reciprocating Agitator and QMS-4010 Extra Sensitive Fluid Regulator.
- Respirator (size medium)
  - MSP-521 Dual Cartridge half-mask silicone respirator
  - MSP-511 Dual Cartridge half-mask rubber respirator
  - MSP-540 Air supplied half-mask silicone respirator

  Also available in small and large sizes.

See pages 9 to 15 for further information on this finishing equipment.

Typical Furniture Finishing Setups

Refer to the foldout found in the back pocket of this booklet for diagrams of typical furniture finishing setups:

- Solventborne System with QMGT Code Tank (see Diagram B)
- Waterborne System with QMST Code Tank (see Diagram C)

Operating Tips

Operating an HVLP spray gun differs very little from operating a conventional air spray gun. Here are a few guidelines to keep in mind:

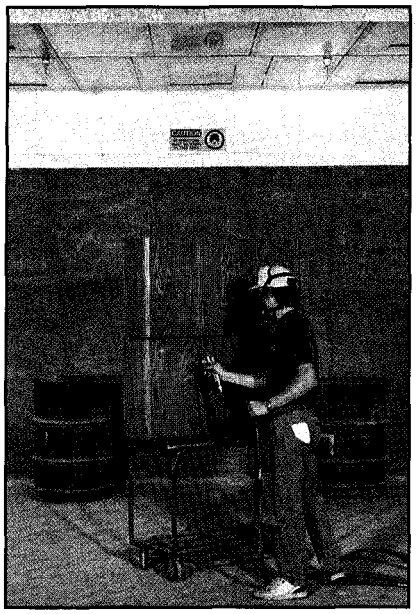
- Due to HVLP's higher transfer efficiency, the fluid flow rate must be lowered. Start with 15-25% less than with a conventional gun.
- Slower particle velocity requires that the gun be held six to eight inches from the target, compared to the 10 to 12 inch distance for conventional guns.

Wiping stain procedures require similar maintenance on both HVLP and air spray guns. Some general operating tips include:

- Reduce atomizing air to avoid excessive drying of the stain before wiping.
- Check flow rates daily.
- Clean build-up from gun tips and air caps as required.
- Do not use ball or needle valves to adjust air pressure. Use regulators.
- Always use the lowest fluid and air pressure possible.
- Lubricate gun daily.
- Before production spraying, test for atomization quality, pattern shape, pattern uniformity and proper shade or coverage desired.
- Wiping stains are extremely abrasive, causing excessive needle and tip wear—check tips by monitoring spray pattern and material leakage.
- Use stainless steel wetted parts on all waterborne stains.

Highlighting Glaze

Like wiping stain, highlighting glaze provides another layer of color and colors the pores in open grain woods. The highlighting glaze should be applied liberally to prevent "white" shadows. A highlighting glaze is generally not wiped as "clean" as a fill glaze, oil sealer or wiping stain.



Equipment Requirements

When applying highlighting glaze, the typical fluid delivery rates range between 16 and 24 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- Air Spray
  - JGV-570-704 FF (.055")
  - MSA-501-704L FF (.055")
- HVLP
  - JGHV-5285-FF (.055") for lower fluid flow rate or JGHV-5465-FF (.055") for higher fluid flow rate.
  - MSV-528-4-FF (.055") for lower fluid flow rate or MSV-546-4-FF (.055") for higher fluid flow rate.

Equipment specifications and diagrams are included on a separate fold-out found in the back pocket of this booklet. Refer to Diagram A for additional information on typical gun set-ups and fluid flow range.

To achieve the finest finish quality when spraying during highlighting operations, we recommend the following:

- CleanAir™ Air Control Unit (Choose one)
  - HFRL-509, centrifugal, 2 regulated, 1 main, 80 CFM
  - HFRL-512, centrifugal/coalescer 2 regulated, 1 main, 80 CFM

  See page 15 for other models.
- Air Hose (Specify Length)
  - H-1921 5/16" I.D. Smooth Cover or H-1901 5/16" I.D. Corrugated Cover with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
- Fluid Hose (Specify Length)
  - ***For Solventborne Material:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three-piece reusable fitting.
  - ***For Waterborne Materials:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (F) three-piece reusable stainless steel swivel fitting.
- Pressure Tank (Specify Capacity)
  - ***For Solventborne Finishes:*** QMGT Galvanized Tank (ASME Code) with or without QS-5012 Rotary Agitator or PT Zinc Plated (Non-Code) 2-1/2 gallon tank with or without Agitator.
  - ***For Waterborne Materials:*** QMST Stainless Steel (ASME Code) Tank with QSR-503 Reciprocating Agitator and QMS-4010 Extra Sensitive Fluid Regulator.
- Respirator (size medium)
  - MSP-521 Dual Cartridge half-mask silicone respirator
  - MSP-511 Dual Cartridge half-mask rubber respirator
  - MSP-540 Air supplied half-mask silicone respirator

  Also available in small and large sizes.

See pages 9 to 15 for further information on this finishing equipment.

Typical Furniture Finishing Setups

Refer to the foldout found in the back pocket of this booklet for diagrams of typical furniture finishing setups:

- Solventborne System with QMGT Code Tank (see Diagram B)
- Waterborne System with QMST Code Tank (see Diagram C)

Operating Tips

Operating an HVLP spray gun differs very little from operating a conventional air spray gun. Here are a few guidelines to keep in mind:

- Due to HVLP's higher transfer efficiency, the fluid flow rate must be lowered. Start with 15-25% less than with a conventional gun.
- Slower particle velocity requires that the gun be held six to eight inches from the target, compared to the 10 to 12 inch distance for conventional guns.

Highlighting with glaze procedures require similar maintenance on both HVLP and air spray guns. Some general operating tips include:

- Reduce atomizing air.
- Check flow rates daily.
- Clean build-up from gun tips and air caps as required.
- Do not use ball or needle valves to adjust air pressure. Use regulators.
- Always use the lowest fluid and air pressure possible.
- Lubricate gun daily.
- Before production spraying, test for atomization quality, pattern shape, pattern uniformity and proper shade or coverage desired.
- Glaze is extremely abrasive, causing excessive needle and tip wear—check tips by monitoring spray pattern and material leakage.

Topcoat Lacquer

Topcoat lacquer provides build, protection and brings out the beauty of the wood and the finishing technique.

It is very important when applying topcoat lacquer that the spray gun fluid pressure and atomization pressure for the gun is properly established. The correct fluid and air pressure provide the most efficient application in relation to product size, speed of the conveyor and load. In addition, take care that the proper tips and needles are always used.

Common Terms

The following terms are also used when referring to the application of topcoat lacquer.

- Lacquer
- Clear Coats
- Finish
- Top Coats

Equipment Requirements

When topcoating with lacquer, the typical fluid delivery rates range between 20 and 30 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- Air Spray
  - JGV-570-704 FF (.055")
  - MSA-501-704L FF (.055")
  - Color lacquer only:
  - JGV-570-765 FF (.055")
  - JGV-570-797 FF (.055")
  - MSA-501-264L FF (.055")
- HVLP
  - JGHV-5465-FF (.055")
  - MSV-546-4-FF (.055")

Equipment specifications and diagrams are included on a separate fold-out found in the back pocket of this booklet. Refer to Diagram A for additional information on typical gun set-ups and fluid flow range.

To achieve the finest finish quality when spraying during topcoat operations, we recommend the following:

- CleanAir™ Air Control Unit (Choose one)
  - HFRL-509, centrifugal, 2 regulated, 1 main, 80 CFM
  - HFRL-512, centrifugal/coalescer 2 regulated, 1 main, 80 CFM

  See page 15 for other models.
- Air Hose (Specify Length)
  - H-1921 5/16" I.D. Smooth Cover or H-1901 5/16" I.D. Corrugated Cover with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
- Fluid Hose (Specify Length)
  - ***For Solventborne Material:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three-piece reusable fitting.
  - ***For Waterborne Materials:*** H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (F) three-piece reusable stainless steel swivel fitting.
- Pressure Tank (Specify Capacity)
  - ***For Solventborne Finishes:*** QMGT Galvanized Tank (ASME Code) with or without QS-5012 Rotary Agitator or PT Zinc Plated (Non-Code) 2-1/2 gallon tank with or without Agitator.
  - ***For Waterborne Materials:*** QMST Stainless Steel (ASME Code) Tank with QSR-503 Reciprocating Agitator and QMS-4010 Extra Sensitive Fluid Regulator.
- Respirator (size medium)
  - MSP-521 Dual Cartridge half-mask silicone respirator
  - MSP-511 Dual Cartridge half-mask rubber respirator
  - MSP-540 Air supplied half-mask silicone respirator

  Also available in small and large sizes.

See pages 9 to 15 for further information on this finishing equipment.

Typical Furniture Finishing Setups

Refer to the foldout found in the back pocket of this booklet for diagrams of typical furniture finishing setups:

- Solventborne System with QMGT Code Tank (see Diagram B)
- Waterborne System with QMST Code Tank (see Diagram C)

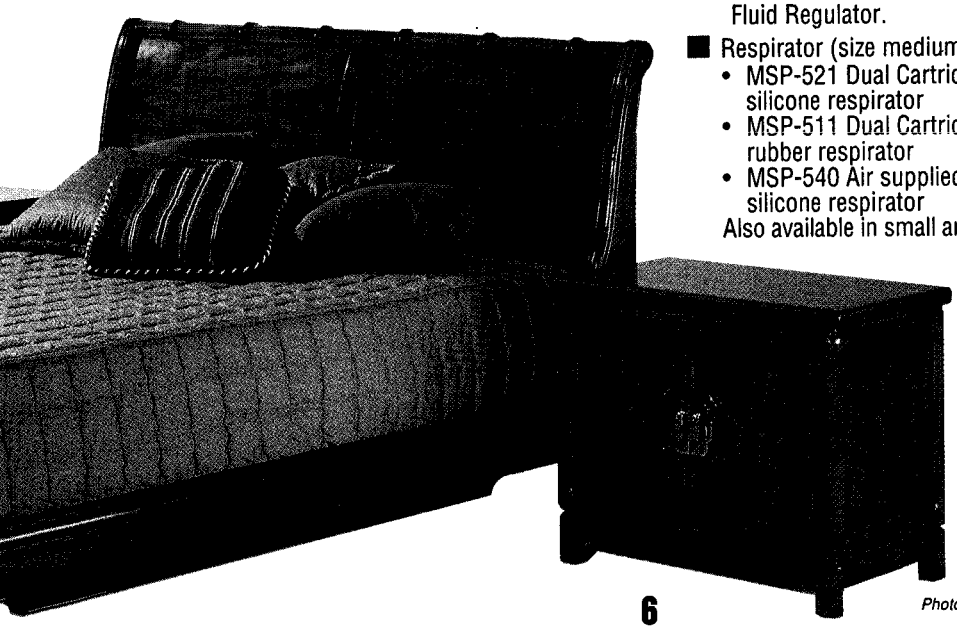
Operating Tips

Operating an HVLP spray gun differs very little from operating a conventional air spray gun. Here are a few guidelines to keep in mind:

- Due to HVLP's higher transfer efficiency, the fluid flow rate must be lowered. Start with 15-25% less than with a conventional gun.
- Slower particle velocity requires that the gun be held six to eight inches from the target, compared to the 10 to 12 inch distance for conventional guns.

Topcoating with lacquer procedures require similar maintenance on both HVLP and air spray guns. Some general operating tips include:

- Material should be monitored by uniformity of mil thickness.
- Use "Solvent Saver" hose and gun cleaner to purge all catalyzed material and all wiping stain from fluid system before pot life runs out. See page 12.
- Reduce atomizing air.
- Check flow rates daily.
- Clean build-up from gun tips and air caps as required.
- Do not use ball or needle valves to adjust air pressure. Use regulators.
- Always use the lowest fluid and air pressure possible.
- Lubricate gun daily.
- Before production spraying, test for atomization quality, pattern shape, pattern uniformity and proper shade or coverage desired.
- Topcoat can be extremely abrasive and corrosive if catalyzed, causing excessive needle and tip wear—check tips by monitoring spray pattern and material leakage.
- Use stainless steel wetted parts for catalyzed and waterborne finishes.



Photos on page 6 and 8 courtesey of Thomasville Furniture; Thomasville, North Carolina.

Specking and Shading

Specking and shading simulate natural imperfections in the wood to enhance the beauty of the finished piece. In this operation, a decorator or touch-up gun is used to apply contrasting colors to the natural wood grain.

Common Terms

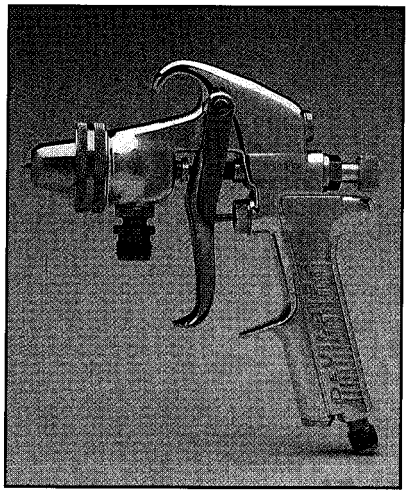
The following terms are also used to describe shading operations.

- Decorating
- Fly Specking

Equipment Requirements

Shading operations typically have a fluid delivery rate range between 3 and 10 ounces per minute. We recommend the MSA-501-35L FX (.042"); a compact gun for shading, blending and touch-up.

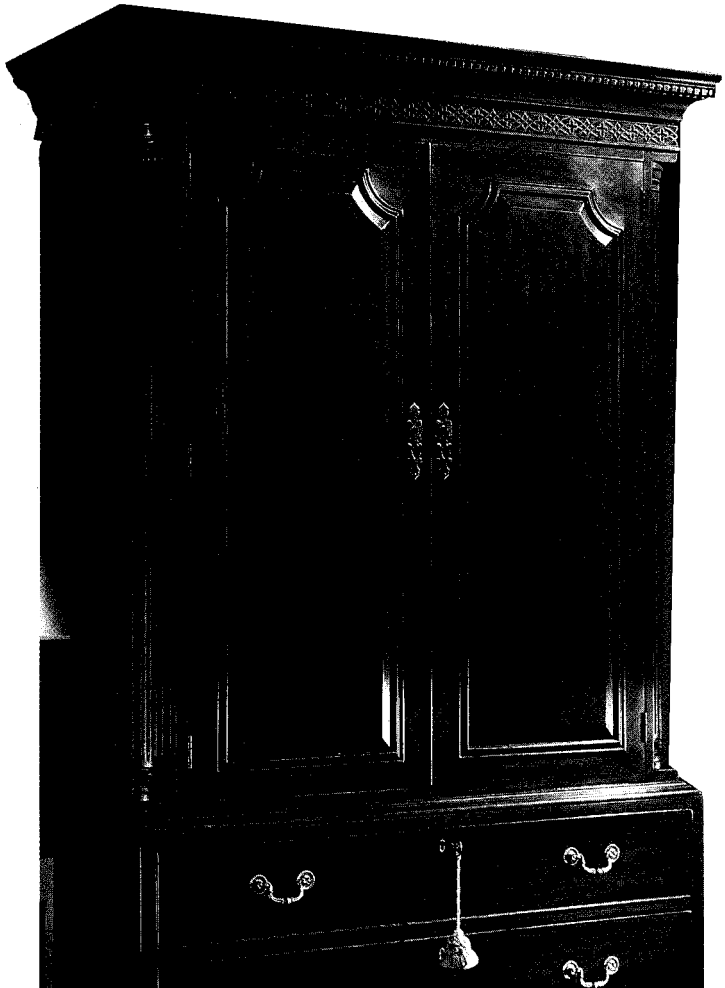
Specking operations have a typical fluid delivery rate range between 2 and 6 ounces per minute. We recommend the MSA-5016 decorator gun.



Operating Tips

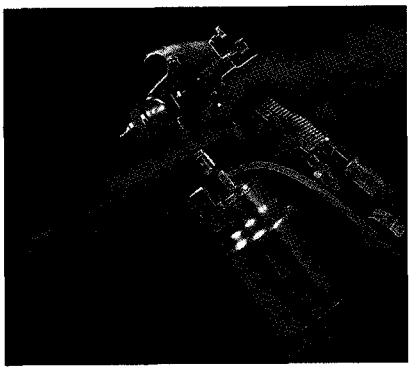
Some general operating tips include:

- Set fluid pressure for either gun at a maximum of 12 psi.
- Specking requires the use of extra sensitive QMS-4010 for precise regulation of fluid pressure.
- To maintain speck size, reduce fluid and air pressure to the MSA-5016 gun.
- Check flow rates daily.
- Clean build-up from gun tips and air caps as required.
- Do not use ball or needle valves to adjust air pressure. Use regulators.
- Always use the lowest fluid and air pressure possible.
- Lubricate gun daily.
- Before production spraying, test for atomization quality, pattern shape, pattern uniformity and proper shade or coverage desired.



Repair

At the repair station, operators repair finishing defects that have occurred in the production finishing line. This booth can be either in- or off-line, depending on the design of the finishing operation.



Equipment Requirements

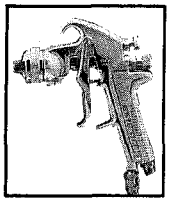
When repairing a finish, the typical fluid delivery rates range between 4 and 8 ounces per minute. We recommend the following air spray and HVLP gun set-ups:

- HVLP Gun
  - JGHV- 5285-FX (.042")
  - MSV-528-4-FX (.042")
- Air Spray Gun
  - JGV-570-704-FX (.042")
  - MSA-501-704L-FX (.042")
  - MSA-501-30-EX
- Air Spray Gun and Cup
  - JGV-570-30 EX
  - TLC-555 (one-quart Teflon-lined cup)
- HVLP Suction Feed Gun & Cup
  - JGHV-530-57D
  - TLC-555
- HVLP Touch Up Gun and Cup
  - EGHV-530-395 F (.040")
  - TGS-503 (8-ounce polyethylene cup)
- Air Spray Touch Up Gun with Cup
  - EGA-502-390 F (.042") with TGS-503 (8-ounce Polyethylene cup)
  - MSA-501-35L FX (.042") with TLC-555 (one-quart, Teflon-lined cup)
- 2 Quart Remote Pressure Cups
  - KB-555 Aluminum (12-25 psi)
  - KB-525 Aluminum (15-50 psi)
  - KB-545-SS (12-25 psi)
  - KB-515-SS (15-50 psi)
- HVLP Gun with One-Quart Stainless Steel Pressure Cup
  - JGHV-608
- Air Spray 1 Quart Suction Cup
  - TGC-545 (Aluminum)
  - TLC-555 (Teflon-lined)
  - TSC-595 (Stainless Steel)

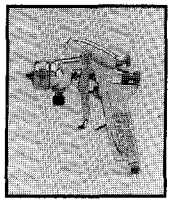
All of the set-ups in this guide are based on years of experience — those years have also shown us that not all situations can be addressed in the same manner. If you have concerns about applying these set-ups to your furniture finishing operation, contact your DeVilbiss Ransburg distributor.

Guns and Accessories

Commonly used guns, cups and accessories for the wood furniture industry.

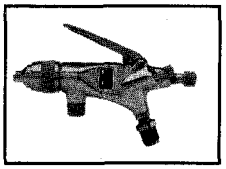


JGHV-5285 (V3™) or JGHV-5465 (Maximum Performer)
The V3 is the hallmark HVLP manual spray gun. It has the feel of the popular, classic JGA spray gun, yet it's even lighter and better balanced. The superior HVLP atomization and performance of the V3 is even further enhanced by the ***"Maximum Performer"***—the HVLP air cap, baffle and lapped tip and needle set, for low V.O.C. materials and higher fluid flows.

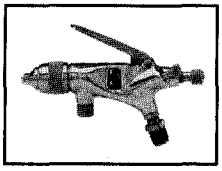


JGV-570. Standard model conventional air spray gun with stainless steel fluid passages. Use with all types of finishes including water soluble materials and NGR stains. Special carbolloy fluid tips and needles are available for use with abrasive glazes.

JGHV Suction Feed HVLP gun & cup.
The JGHV-530-57D suction feed HVLP gun is ideal for lower production type applications, especially where multiple colors are required. It can be used with any of the three types of one-quart paint cups: the TLC-555 Teflon®- lined, the TGC-545 aluminum, or the TSC-595 stainless steel.

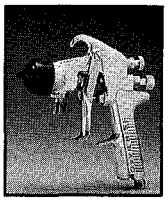


EGA-502. The EGA-502 conventional air spray gun is the gun of choice for precision spraying applications such as touch-up, shading, edging and detail decorating. The gun's long needle taper makes detail work easy, while the forefinger trigger gives operators added control for delicate touch-up applications.



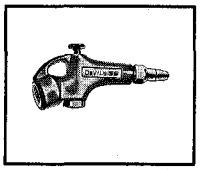
EGHV-530 HVLP Touch Up/Detail Spray Gun.
The EGHV is designed for comfort and control. The long taper fluid needle and top mounted trigger give precise control for the most exacting detail and touch-up work.
The EGHV's drop-forged, high strength aluminum alloy gun body is strong and durable. Weighing only 7.5 ounces, the gun is made for hours of fatigue-free precision painting.

MSA-5016. Also known as the Decorator Model. Use this conventional air spray gun to apply decorative finishes. Optional caps include a round pattern spatter cap for fine textured blending, shading or misting; or a veiling cap.

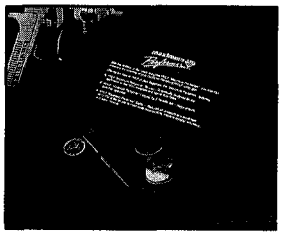


MSA-501 Combines all the features and benefits of a full-size conventional spray gun into a perfectly balanced, lightweight compact model. The MSA replacement parts are completely interchangeable with standard spray guns and uses either JGA or JGV air caps and fluid tips. Available as a pressure or suction feed model.

MSV-501 This perfectly balanced, lightweight compact model performs like the full-size V3 HVLP spray gun. The MSV replacement parts are completely interchangeable with Standard V3 HVLP guns, air caps and tips included.



DGC-502 Duster Gun. Compact design and durable construction make this duster gun ideal for dusting applications and surface preparation after sanding.

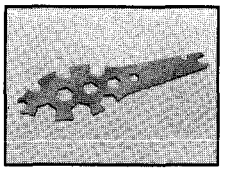


The HVLP ***"Maximum Performer"*** is designed to maximize the potential of the DeVilbiss Ransburg HVLP spray guns. The specially developed "Maximum Performer" includes:

- "Maximum Performer" Air Cap— specifically for the application of low V.O.C. materials (3.7 lbs. or less) and higher flow rates (13 oz./min. or more).
- "Maximum Performer" Lapped Tip and Needle Set— helps ensure leak-free operation.
- "Maximum Performer" Baffle— reduces air pressure to a 10 psi maximum at 50 psi inlet.

Available as a factory assembled model or as a conversion package for existing HVLP Guns.

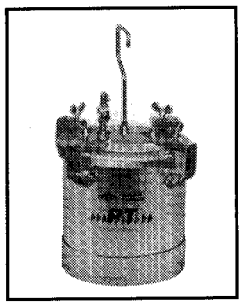
Gun Lube SSL-10. Specially formulated lubricant to improve performance and extend the life of spraying and mixing equipment. Contains no silicones or petroleum distillates to contaminate paint and coatings.



WR-103 Gun Wrench. Contains all necessary tip, hose and nut sizes used on or with gun.

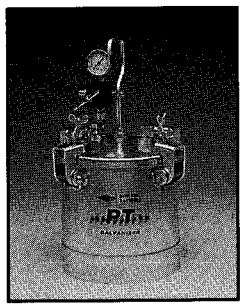
Tanks and Cups

PT Series Pressure Feed Tanks

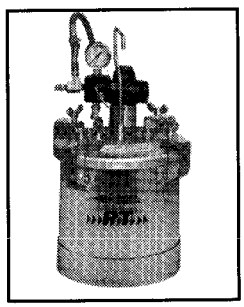


PT-500 Series. An economical, high performance (non-ASME) pressure tank. Low profile tank design accepts U.S. and Canadian one-gallon shipping containers.

Wetted parts are zinc-plated carbon steel (shell, pick-up tube and lid); aluminum (propeller); chrome-plated brass (fluid outlet fitting and nipple).



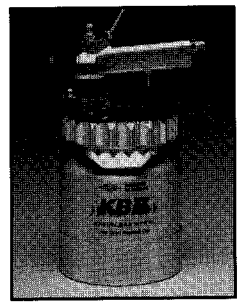
PT-510 Series. A single-regulation tank that can be converted to dual-regulation units by adding PT-413 air regulator assembly kit.



PT-520 Series. Utilizes a powerful and smooth-running air driven motor to turn the agitator to provide a professional and continuous paint mixing. PT-520 can be converted to a dual regulation unit by adding PT-413 air regulator assembly kit.

PT-530. For use with HVLP (high volume, low pressure) outfits. Maximum working pressure 30 p.s.i.

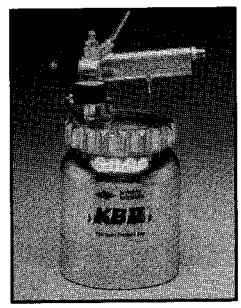
Pressure Cups



WATERBORNE COMPATIBLE

KB-515-SS. A two-quart stainless steel pressure cup for higher flow/air spray application of corrosive materials. (0-60 psi)

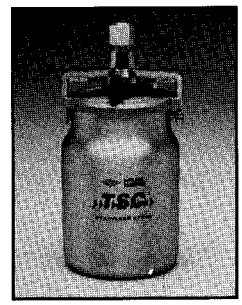
KB-545-SS. A two-quart stainless steel pressure cup for low flow/HVLP application of corrosive materials. Use with NGR stains or other mildly corrosive finishes such as waterborne formulas.



KB-525. A two-quart aluminum pressure cup for higher flow/air spray applications.

KB-555. A two-quart aluminum pressure cup for low flow/HVLP applications.

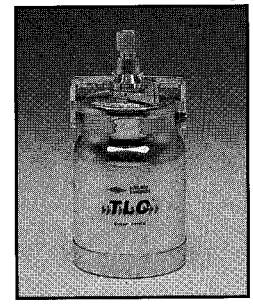
Use with standard, non-corrosive finishing materials such as clear lacquer topcoats.



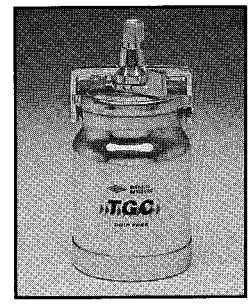
WATERBORNE COMPATIBLE

TSC-591. A one-quart stainless steel pressure cup for HVLP applications. Designed for use with water base NGR stains and exempt halogenated solvents.

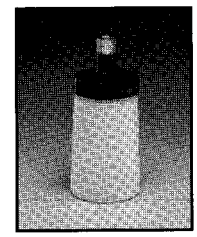
Suction Feed Cups



TLC-555. A one-quart aluminum cup with Teflon lining. Designed for suction feed, air spray applications.



TGC-545. A one-quart aluminum cup with a two-position lid design. Set in the first position it is a drip-free cup; set in the second position, it is a conventional suction feed cup. (0-30 psi)



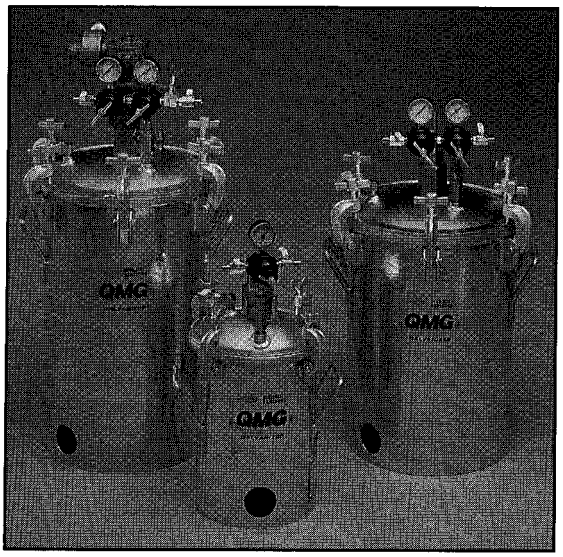
WATERBORNE COMPATIBLE

TGS-503. A lightweight 8 oz. polyethylene cup for use with EGA and EGHV Guns. Available in clear engineered resin (TGS-501) or transluscent Polyethylene (TGS-503).

WATERBORNE COMPATIBLE

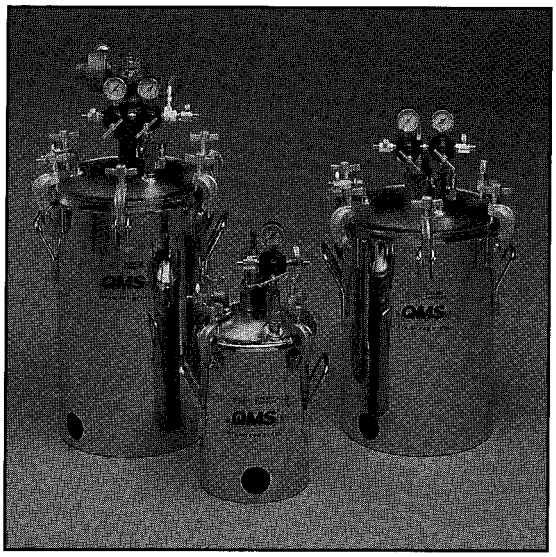
TSC-595. A one-quart stainless steel suction feed cup for conventional air spray or suction feed HVLP applications.

ASME Code Pressure Tanks



QMG Galvanized Steel Tanks for Solventborne Finishes

QMG tanks are galvanized steel with heavy pressed steel lid and forged steel clamps. Primarily used with noncorrosive materials, QMG tanks have ports for both bottom and top fluid outlets. Bottom outlet recommended for heavy viscous materials, such as emulsified asphalts, cut-back asphalts, rubber compounds, etc. To convert top to bottom outlet, order separate accessory kits.



WATERBORNE COMPATIBLE

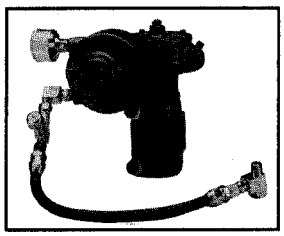
QMS Stainless Steel Tanks for Waterborne Finishes

QMS tanks are all constructed of 303 and 304 grade stainless steel. Following fabrication, the tank shell and lid are "electropolished". This process smooths and cleans the surface anodically in a bath of concentrated acid, which "passivates" the stainless steel surfaces against corrosion and removes metal impurities or residue that may contaminate painting material. Agitator paddles are molded from glass-filled nylon, which does not react with paint material. So QMS tanks are truly compatible with corrosive, waterborne, and acid catalyzed materials, as well as those containing halogenated hydrocarbons. Plus, all electropolished surfaces are bright and smooth, making them easy to clean.

QMG and QMS Tank Features

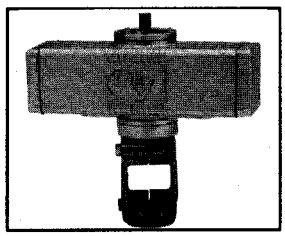
- Built to ASME safety specifications and comply with OSHA Federal Safety Regulations.
- 360-degree clamping area makes tank easy to close.
- Short two-gallon size offers more stability.
- Two-gallon tank accepts standard one-gallon U.S. or Imperial shipping containers.
- Five-gallon tank accepts standard five-gallon container.
- All tanks ported to take bottom outlet.
- Extended skirt and access holes for simple, economical bottom outlet conversion. (Dollies/risers not required.)
- 5 through 15 gallon tanks are FM approved.
- Lid disassembles easily—no special tools required. Easy to service and clean.
- Improved quick-and-easy agitator mounting.
- Polyethylene semi-rigid liner included with each 2-, 5-, and 10-gallon tank. (Top outlet models.)
- Welded couplings in lid prevent air leakage.
- Thiokol® lid gasket standard with rubber or Teflon® options. (Thiokol handles most conventional solvents.)
- Insert containers in either stainless steel or template construction available in all sizes.
- All models available fully assembled by the factory.

Pressure Tanks and Solvent Saver



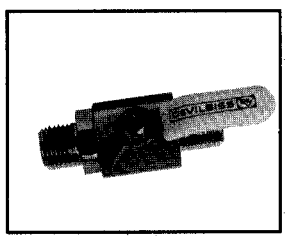
QS-5012 Air Motor Drive.
Standard duty, smooth running with gear reducer, 1/4 hp, 15:1 ratio, 20 to 120 RPM. Includes throttling valve, fittings and hose for connection to air supply on tank lid. Air consumption: Approximately 6 CFM at 50 RPM.

Also available:
QS-5013 Heavy Duty 1/2 H.P. Air Motor Drive

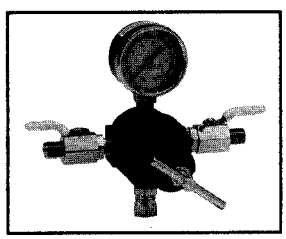


WATERBORNE COMPATIBLE

QSR-503 Reciprocating Air Motor Drive. Ensures excellent agitation while using 50% less air than rotary-type air motors. Unique design eliminates foaming with waterborne finishes.

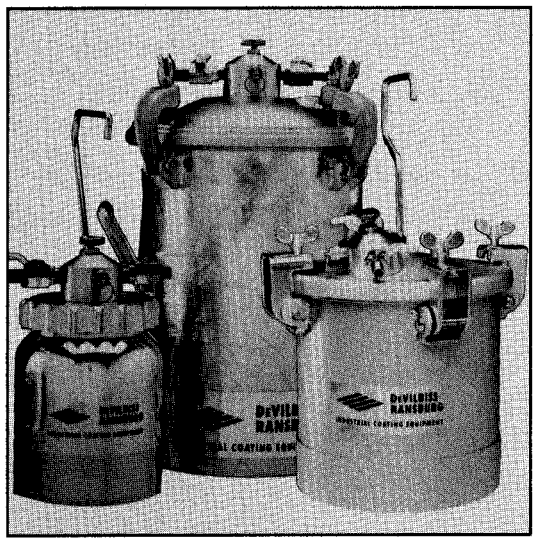


Air and Fluid Ball Valves. VA-542 air inlet shut-off valve and VA-540 fluid outlet shut-off valve for ease and convenience of attaching air and fluid hoses.



QMS-4010. Air Regulator Assembly.
Extra sensitive gauge and regulator are perfect for applications requiring extremely sensitive non-fluctuating low pressure control.

Solvent Savers™ Hose/Gun Cleaners

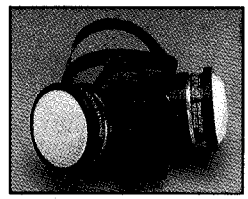


Solvent Savers™ Hose/Gun Cleaners
Simple easy-to-use cleaners speed up equipment cleaning and save solvent, reducing V.O.C. emissions. Operate with compressed air. Provide finely atomized blast of solvent traveling through fluid passages of spray guns, hoses, etc. Metering permits varying air/solvent mix. Equipped with safety valve. 1/4" NPS (M) air and 3/8" NPS (M) fluid connections.

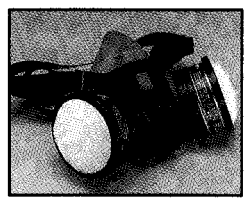
HD-503. A two-quart aluminum hose and gun cleaner. Uses the same wide mouth, wide base design as the KB II cups.

QMGZ and QMSZ. Two, five, ten and fifteen gallon hose and gun cleaners. Both products are ASME-code approved. QMGZ is made of galvanized materials while QMSZ is stainless steel.

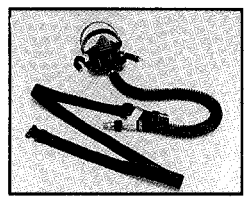
PTZ-502. A two-and-one-half gallon aluminum hose and gun cleaner. Uses the economical PT type pressure tank design.



MSP-521
Dual Cartridge
Half-Mask, Size Medium
Silicone Respirator

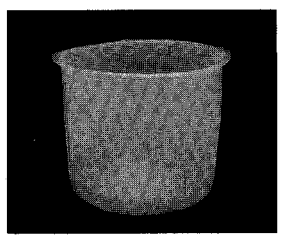


MSP-511
Dual Cartridge
Half-Mask, Size Medium
Rubber Respirator



MSP-540
Air Supplied
Half-Mask, Size Medium
Silicone Respirator

Also available in small and large sizes.



Polyethylene Liner: Semi-rigid tank liner of tough, durable, high density (pink) polyethylene with "ANTI-STAT" additive which minimizes static electricity build-up from the friction of shipping and handling liners. Can be used with agitators. May be reused.

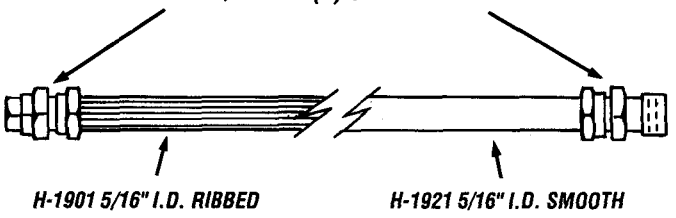
Tank Capacity	Part Number	Kit of
2-Gal.	PT-52-K10	10
2-Gal.	PT-52-K80	80
5-Gal.	PTL-406-K20	20
10-Gal.	PTL-410-K8	8

Hose Selection

Assemblies and Connections

AIR HOSE/ALL STATIONS

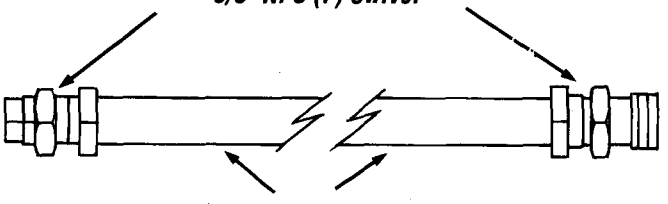
P-HC-4527
3 Piece Reusable Fitting
1/4" NPS (F) Swivel



H-1901 5/16" I.D. RIBBED ***H-1921 5/16" I.D. SMOOTH***

FLUID HOSE/ALL STATIONS
For Solventborne Finishes

P-HC-4548
3 Piece Reusable Fitting
3/8" NPS (F) Swivel

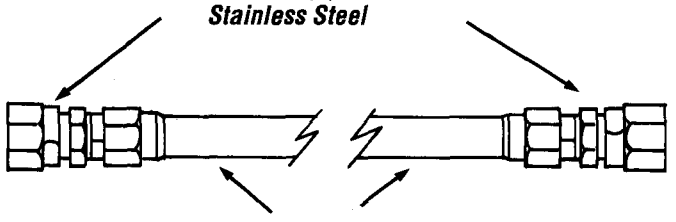


H-1973-1 3/8" I.D. NYLINER

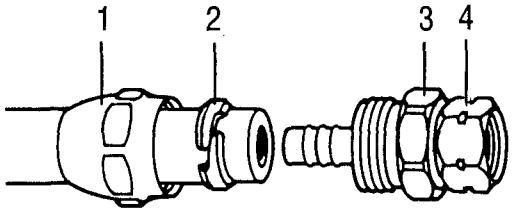
FLUID HOSE /ALL STATIONS
For Waterborne Materials

WATERBORNE COMPATIBLE

P-HC-4561
3 Piece Reusable Fitting
3/8" NPS (F) Swivel
Stainless Steel



H-1973-1 3/8" I.D. NYLINER



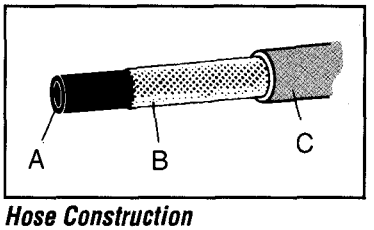
Hose and Connection

1) Sleeve
2) Compression Ring
3) Connection Body
4) Female Swivel

Hose Selection

Spray gun performance depends on receiving air and fluid at specified pressures and in adequate volume. Because hose can be the weakest link in finishing application, DeVilbiss Ransburg offers a broad spectrum of high quality, production proven hose to provide the strongest link in any application.

Most DeVilbiss Ransburg hose is identified with the Ransburg name, hose number, hose size and working pressure, so you can be sure of purchasing the proper hose required for your application.



Hose Construction

DeVilbiss Ransburg hose has three components: tube (A), reinforcement (B), and cover (C).

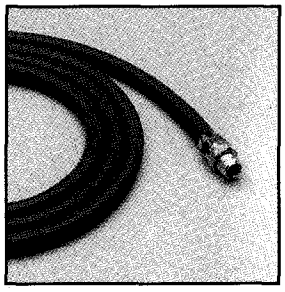
A) The tube is the interior flexible artery that carries air or liquid from one end of the hose to the other.

B) Reinforcement adds strength to the hose. It is located between tube and cover and can combine many types of reinforcement designs and materials. These designs and materials determine a hose's pressure rating, flexibility, coupling retention, and kink and stretch resistance.

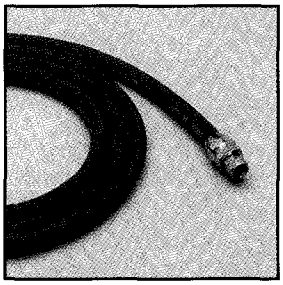
C) The cover is the outer skin of the hose. It protects the reinforcement by preventing contact with oils, moisture, chemicals and abrasive surfaces. The cover does not contribute to hose performance characteristics. DeVilbiss Ransburg uses red compounded covers to identify air and water hoses, gray covers to identify static grounded air hoses, and black covers to identify low pressure fluid hoses. Orange covers identify high pressure fluid hoses. Most covers carry the DeVilbiss Ransburg imprint with hose part number and rated maximum working pressure listed.

Hose Selection

Air Hose for All Stations



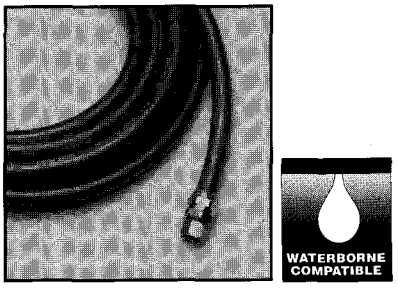
H-1921 5/16" I.D. Smooth Cover Air Hose with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fittings.
Tube: Synthetic rubber compound. Excellent oil and water resistance.
Cover: Brick red color synthetic rubber compound with superior resistance to oil, weathering, ozone and abrasion.
Reinforcement: High tensile strength braid, specially designed for maximum flexibility (under pressure) and maximum coupling retention.



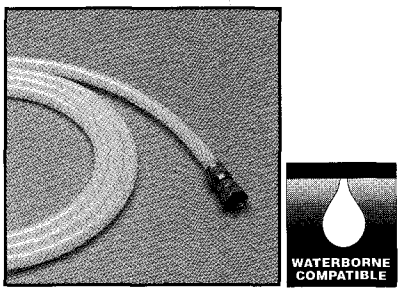
H-1901 5/16" I.D. Ribbed Cover Air Hose with P-HC-4527 1/4" NPS (F) three-piece reusable swivel fitting.
Same as H-1921, but has corrugated cover.

Fluid Hose for All Stations

H-1973-1 3/8" I.D. Nyliner II with P-HC-4548 3/8" NPS (F) three-piece reusable swivel fittings.
Tube: Nylon. ***Cover:*** Neoprene rubber.
Reinforcement: High tensile strength yarn.



H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8 " NPS (F) three-piece reusable stainless steel swivel fittings.
Tube: Nylon ***Cover:*** Neoprene rubber.
Reinforcement: High-tensile strength yarn.



PLH-NP-6 3/8" I.D. Nylon Tubing with PLH-3838-SS 3/8 " NPS (F) three-piece reusable stainless steel swivel fitting.
Tube: Seamless extruded construction. Inside and outside dimensions held to close tolerances. Translucent white color.

Hose Connection Features

- Constructed of highest quality material
- Reusable
- Close tolerances assure superior hose retention
- Superior corrosion resistance
- Rugged construction assures maximum durability and reliability

Recommended Furniture Finishing Bulk Hose Chart

Cover	Type	Sizes Available I.D.	Sizes Available O.D.	Bulk Hose Number	Maximum Working Pressure (psi)	Feet per Reel	Approx. Shipping Weight Based on Feet per Reel	Hose Weight per 100 Feet
Smooth	Air	5/16"	5/8"	H-1921	250	500-700	92 lbs.	13.8 lbs.
Corrugated	Air	5/16"	5/8"	H-1901	250	500-700	92 lbs.	13.8 lbs.
Neoprene Rubber	Fluid	3/8"	11/16"	H-1973-1	500	400-650	90.5 lbs.	15 lbs.
Nylon	Air/Fluid	3/8"	1/2"	PLH-NP-6	250	500	24 lbs.	4.8 lbs.

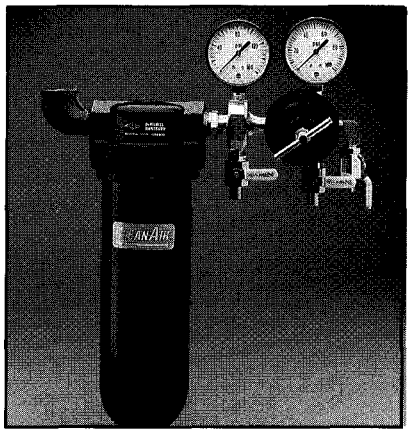
Recommended Fluid Hose and Tubing Connections for Furniture Finishing

Hose/Tube I.D.	Size O.D.	Hose/Tube Number	Female Thread Size	Stainless Steel Tube Connection	Max. Working Pressure	Type*
3/8"	11/16"	H-1973-1	3/8" NPS	P-HC-4548	250	P.B.
3/8"	11/16"	H-1973-1	3/8" NPS	P-HC-4561	250	S.S.
3/8"	1/2"	PLH-NP-6	3/8" NPS	PLH-3838-SS	250	S.S.

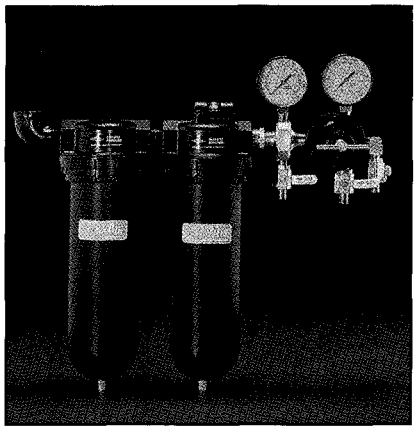
**** SS= Stainless Steel, PB= Plated Brass***

CleanAir™ Air Control Systems

CleanAir™
Air Control Systems
DeVilbiss Ransburg CleanAir™ Air Control Systems gives you clean, dry dependable air all of the time through a high capacity, filtering system. The centrifugal stage creates a "tornado"-like swirling action that flings water droplets to the sides of the bowl, where they collect in a baffled "quiet zone" at the bottom of the bowl. An automatic drain removes the moisture buildup when the level reaches a certain point. The five-micron particulate filter removes any dirt particles or oil which may still be in the air. Then, as air enters the highly efficient coalescer, it is filtered through a borosilicate glass microfiber filter. This filter effectively traps fine oil mists, oil aerosols, and microscopic particles down to .01 micron.

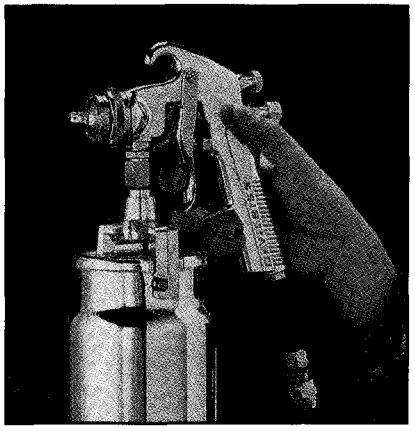


Shown above:
HFRL-509 Centrifugal
(2 regulated, 1 main, 80 CFM)
Also Available:
HFRL-508 (1 regulated, 1 main, 50 CFM)
HFRL-511 (4 regulated, 1 main, 120 CFM)

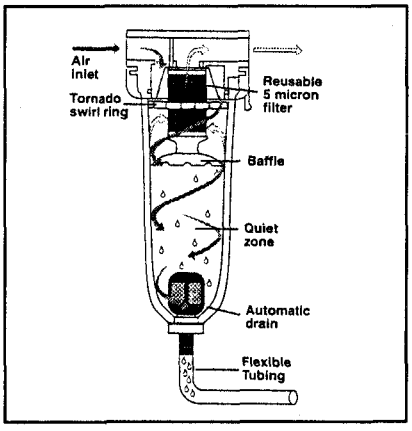


Shown above:
HFRL-512 centrifugal/coalescer
(2 regulated, 1 main, 80 CFM)
Also available:
HFRL-513 (4 regulated, 1 main, 120 CFM)

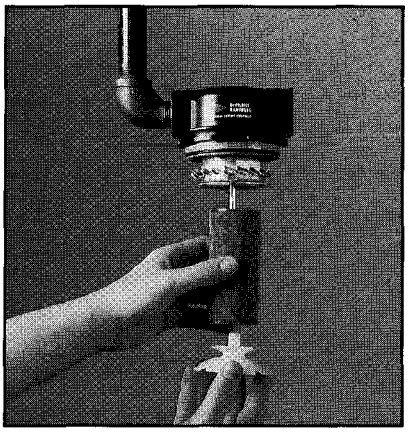
HAF-503 (150 CFM) and **HAF-502** (100 CFM) nonregulated air filters provide high capacity filtering.



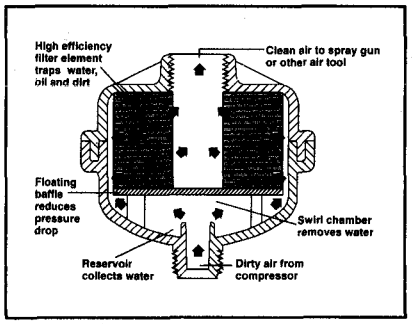
Finish Guard ™
Disposable In-Line Filter (patented)
A final line of defense in further reducing any possible contaminants in furniture finishing operations is the Finish Guard In-Line Filter. The disposable air line filter is mounted to the base of the spray gun to remove any remaining water and oil, even dirt and rust, from the air line.



Air entering the filter is swirled to remove moisture which collects in the baffled "quiet zone". Smaller impurities are filtered out by the reusable 5 micron filter. Accumulated liquid is carried away by the automatic drain.



No tools are needed to remove the quick-release bowl or change the easy spin-off 5 micron filter element.


High efficiency filter element traps water, oil and dirt
Clean air to spray gun or other air tool
Floating baffle reduces pressure drop
Swirl chamber removes water
Reservoir collects water
Dirty air from compressor

Troubleshooting

CONDITION	CAUSE	CORRECTION
Starved spray pattern	1. Inadequate material flow. 2. Low atomization air pressure (suction feed).	1. Back fluid adjusting screw on spray gun out to first thread. 2. Increase air pressure and rebalance gun.
Unable to form round spray pattern	1. Fan adjustment stem not seating properly.	1. Clean or replace.
Dry spray	1. Air pressure too high. 2. Material not properly reduced (suction feed). 3. Gun tip too far from work surface. 4. Gun motion too fast. 5. Gun out of adjustment.	1. Decrease air pressure. 2. Reduce to proper consistency. 3. Adjust to proper distance. 4. Slow down. 5. Adjust.
Excessive overspray	1. Too much atomization air pressure. 2. Gun too far from work surface. 3. Improper stroking (arcing, gun motion too fast)	1. Reduce pressure. 2. Adjust to proper distance. 3. Move at moderate pace, parallel to work surface.
Excessive Fog	1. Too much, or too fast-drying thinner. 2. Too much atomization air pressure.	1. Remix properly. 2. Reduce pressure.
Will not spray	1. No pressure at gun. 2. Fluid pressure too low (with internal mix cap and pressure tank). 3. Fluid tip not open enough. 4. Fluid too heavy (suction feed). 5. Internal mix cap used with suction feed.	1. Check air line. 2. Increase fluid pressure at tank. 3. Open fluid adjusting screw. 4. Reduce fluid or change to pressure feed. 5. Change to external air cap.
Top or bottom heavy spray pattern*	1. Horn holes plugged. 2. Obstruction on top or bottom of fluid tip. 3. Cap and /or tip seat dirty.	1. Clean. Ream with non-metallic point. 2. Clean. 3. Clean.
Right or left-heavy spray pattern*	1. Left or right side horn holes plugged. 2. Dirt on left or right side of fluid tip.	1. Clean. Ream with non-metallic point. 2. Clean.
* Remedies for the top-heavy, bottom-heavy, right-heavy and left-heavy patterns are: 1) Determine if the obstruction is on the air cap or the fluid tip. Do this by making a solid test spray pattern. Then, rotate the cap one-half turn and spray another pattern. If the defect is inverted, obstruction is on the air cap. 2) If the defect is not inverted, it is on the fluid tip. Check for a fine burr on the edge of the fluid tip. Remove with #600 sand paper. 3) Check for dried paint just inside the opening. Remove paint by washing with solvent.		
Center-heavy spray pattern	1. Fluid pressure too high for atomization air (pressure feed). 2. Material flow exceeds air cap's capacity. 3. Spreader adjustment valve set too low. 4. Atomizing pressure too low. 5. Material too thick.	1. Balance air and fluid pressure. Reduce spray pattern width with spreader adjustment valve. 2. Thin or lower fluid flow. 3. Adjust. 4. Increase pressure. 5. Thin to proper consistency.
Split spray pattern	1. Fluid adjusting knob turned in too far. 2. Atomization air pressure too high. 3. Fluid pressure too low (pressure feed only).	1. Back out counter clockwise to achieve proper flow. 2. Reduce at transformer or gun. 3. Increase fluid pressure (increases gun handling speed).
Fluid leaking from packing unit	1. Packing nut loose. 2. Packing worn or dry.	1. Tighten, but do not bind needle. 2. Replace packing or lubricate.
Air leaking from front of gun	1. Sticking air valve stem. 2. Foreign matter on air valve or seat. 3. Worn or damaged air valve or seat. 4. Broken air valve spring. 5. Bent valve stem. 6. Air valve gasket damaged or missing.	1. Lubricate. 2. Clean. 3. Replace. 4. Replace. 5. Replace. 6. Replace.
Fluid leaking or dripping from front of pressure feed gun	1. Packing nut too tight. 2. Fluid tip or needle worn or damaged. 3. Foreign matter in tip. 4. Fluid needle spring broken. 5. Wrong size needle or tip. 6. Dry packing. 7. Fluid adjusting knob is backed off too far.	1. Adjust. 2. Replace tip and needle with lapped sets. 3. Clean. 4. Replace. 5. Replace. 6. Lubricate. 7. Adjust.
Jerky, fluttering spray	1. Material level too low. 2. Container tipped too far. 3. Obstruction in fluid passage. 4. Loose or broken fluid tube or fluid inlet nipple. 5. Loose or damaged fluid tip/seat. 6. Dry or loose fluid needle packing nut.	1. Refill 2. Hold more upright. 3. Backflush with solvent. 4. Tighten or replace. 5. Adjust or replace 6. Lubricate or tighten.
(Suction Feed only)	*7. Material too heavy.* *8. Container tipped too far.* *9. Air vent in cup clogged.* *10. Loose, damaged or dirty lid.* *11. Dry or loose fluid needle packing.* *12. Fluid tube resting on cup bottom.* *13. Damaged gasket behind fluid tip.*	*7. Thin or replace.* *8. Hold more upright.* *9. Clear vent passage.* *10. Tighten, replace or clean coupling nut.* *11. Lubricate or tighten packing nut.* *12. Tighten or shorten.* *13. Replace gasket.*

To assure proper performance use only genuine DeVilbiss Ransburg replacement parts.

DEVILBISS
RANSBURG

INDUSTRIAL COATING EQUIPMENT

DeVilbiss Ransburg...

Available through a nationwide network of industrial distributors.

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Southern Regional Sales
520 Wharton Circle
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Atlanta, GA 30336
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FAX: (404) 505-3345

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Distribution Center
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FAX (310) 944-5786

TOLEDO-
Headquarters and Northern Regional Sales
1724 Indian Wood Circle, Suite F
Maumee, OH 43537
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FAX: (419) 891-8205

Canadian Offices

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Barrie, Ontario L4M 6K1
Canada
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FAX: (705) 721-5533

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For Technical Assistance Call
1-800-DEV-4448 (Continental USA Only)

DeVilbiss Ransburg
Industrial Coating Equipment
An Illinois Tool Works Company
Maumee, Ohio 43537

DeVilbiss Ransburg
Spray Equipment
A Division of ITW Canada, Inc.
Barrie, Ontario L4M 6K1

DEVILBISS
RANSBURG
INDUSTRIAL COATING EQUIPMENT

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DEVILBISS
RANSBURG

INDUSTRIAL COATING EQUIPMENT

I-4057

CleanAir™

Air Control Equipment: Filters, Regulators, and Accessories

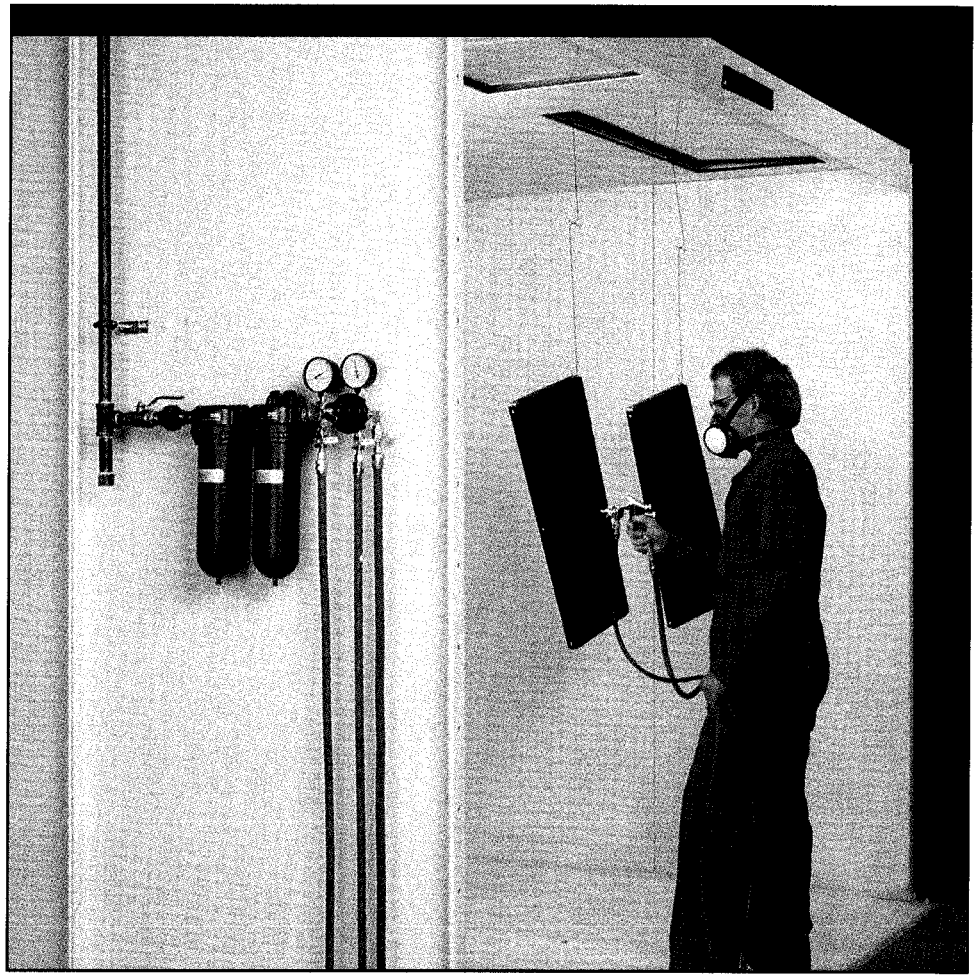
START WITH CLEAN AIR FOR A QUALITY FINISH!

The Ultimate in Clean Air

An otherwise great paint finish can be totally ruined by the presence of just a small amount of dirt, water or oil in the air line. The resulting fisheyes, pinholes, blushing or dulling mean a job has to be redone – a waste of both time and money.

DeVilbiss Ransburg offers a complete line of filtering units to eliminate water, oil, and solid particulates – all to ensure contaminant-free material application. And today's high solids and waterbornes are even more sensitive to these contaminants.

There are four types of filtering units available from DeVilbiss Ransburg: centrifugal, coalescing, a three-stage desiccant, and a final in-line. Refer to information chart (below) for details.



The Importance of Proper Installation

Besides the installation of quality equipment, following a few basic principles can greatly decrease the risk of contaminates:

■ As air compressors are designed to idle 50% of the time, an overworked compressor can produce a significant amount of dirt and oil into your system. Use an air compressor large enough to meet your needs. If you require assistance, call DeVilbiss Air Compressor Products at (705) 728-5657.

■ Proper piping is very important to a finishing operation. When not piped properly, condensation quickly forms within the pipeline to contaminate the air supply. For more information on piping a facility, refer to our service bulletin: SB-6-145.

CLEANAIR PRODUCT INFORMATION

Type	*Model*	*Page No.*	*Filters Out*	*Filtering Capacity (Approx. Particulate Size)*	*Typical Application*	*Additional Recommendations*
CENTRIFUGAL		3	Water and oil aerosols and dirt particulate	5 Micron	Most spray applications, air tools and equipment.	Use the disposable HAF-507 Finish Guard™ in-line filter for insurance against condensed water in your air hose.
Filter Only	HAF-502					
	HAF-503					
Filter Regulator	HFRL-508					
	HFRL-509					
	HFRL-511					
COALESCING		4	Water and oil aerosols and dirt particulate	.01 Micron	Most spray applications, especially where oil aerosols may be a problem.	Use a centrifugal filter (HAF-502 or HAF-503) upstream of coalescing filter to remove majority of water, oil, dirt particulate.
Filter Only	HAF-508					
	HAF-509					
Filter Regulator	HFRL-512					
	HFRL-513					
THREE STAGE DESICCANT		5	Water and oil aerosols, dirt particulate, water and oil vapor	.01 Micron -40°F Dew Point	Single gun applications, low to medium production. For moisture sensitive catalyzed materials requiring critically clean air.	Not intended for continuous use. Use "Installation Qualification Form" DI-5005 to determine suitability of DAD-501 for application.
Filter Regulator	DAD-501					
IN LINE-Finish Guard™		6	Water and oil aerosols and dirt particulate	Down to .01 Micron	Attaches to gun inlet. Filters out moisture that may condense in air hose between wall-mounted filter and gun. Disposable.	Filter life is approximately 10 days if used downstream of wall-mounted air filtration system.
	HAF-507					

CleanAir Centrifugal Filter-Regulator Units

DeVilbiss Ransburg CleanAir centrifugal units are excellent for eliminating moisture and dirt from an air supply. Our CleanAir units supply cleaner, drier air to each spray gun in a system, and even pneumatic tools (cleaner air increases tool life).

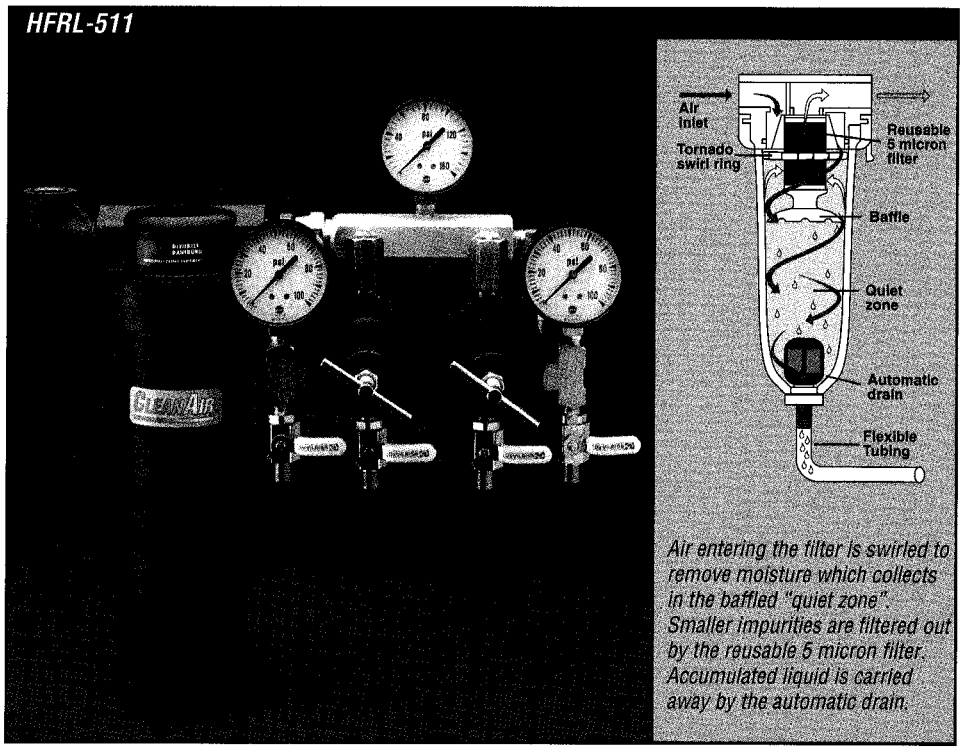
Water can condense even in the driest air, especially in high pressure systems. The DeVilbiss Ransburg CleanAir unit creates a "tornado"-like swirling action, flinging water droplets to the sides of the bowl, where they collect in a baffled "quiet zone" at the bottom of the bowl.

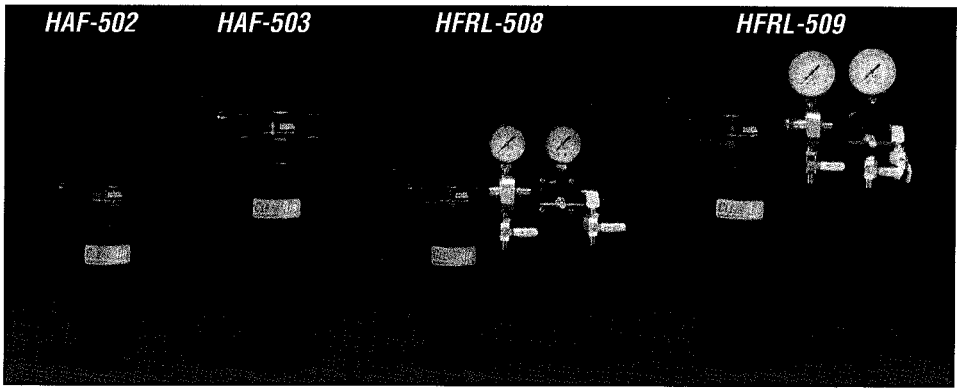
An automatic drain removes the moisture buildup in the bowl, eliminating daily bowl draining. The five micron filter element removes any dirt particles or oil which may still be in the air. The quick release filter bowl and spin-off filter element allow one minute filter changes with no tools. Optional mounting brackets are available.

The large air inlet and outlet, plus large internal air passages, minimize pressure drop.

Service Literature:

SB-6-146: HAF-502, HFRL-508
SB-6-148-A: HAF-503, HFRL-509, HFRL-511


HFRL-511
Air inlet
Tornado swirl ring
Reusable 5 micron filter
Baffle
Quiet zone
Automatic drain
Flexible Tubing
Air entering the filter is swirled to remove moisture which collects in the baffled "quiet zone". Smaller impurities are filtered out by the reusable 5 micron filter. Accumulated liquid is carried away by the automatic drain.



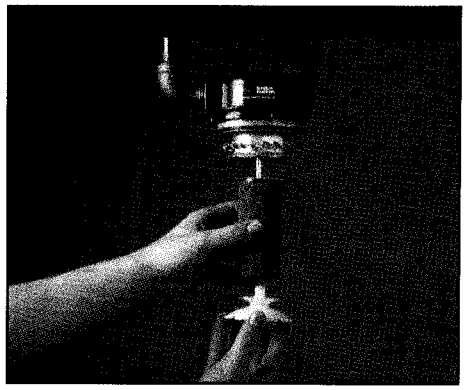
PRESSURE DROP COMPARISON* (PSI)

Reg. Outlet @ 25 CFM	Brand "B"	DeVilbiss Ransburg HAR-507	DeVilbiss Ransburg HAR-506
40 PSI	11.9 PSI	2.1 PSI	9.3 PSI
60 PSI	14.0 PSI	4.5 PSI	10.2 PSI
75 PSI	15.5 PSI	5.0 PSI	11.5 PSI

* All tests were done with 90 PSI at inlet of regulator.

CLEANAIR AIR CONTROL UNITS MODELS/SPECIFICATIONS

Specifications	Air Filters Only HAF-502	Air Filters Only HAF-503	Filter Regulators Only HFRL-508	Filter Regulators Only HFRL-509	Filter Regulators Only HFRL-511
Separator Filtering Capacity (in mic.)	5	5	5	5	5
Flow Rate-CFM	100 @ 90 PSI	150 @ 90 PSI	50+	80+	120+
Maximum Inlet Press.-PSI	150	150	150	150	150
Regulated Pressure Range-PSI	—	—	0-125	0-125	0-125
Maximum Operating Temperature	150°F	150°F	150°F	150°F	150°F
Inlet Port Size	1/2" NPT(F)	3/4" NPT(F)	1/2"NPT(F)	3/4"NPT(F)	3/4"NPT(F)
Outlet Port Size	1/2" NPT(F)	3/4" NPT(F)	—	—	—
Regulated Outlets w/ ball valve	—	—	(1)1/4" NPS(M)	(2)1/4" NPS(M)	(4)1/4" NPS(M)
Non-regulated Outlets w/ ball valve	—	—	(1)1/4" NPS(M)	(1)1/4" NPS(M)	(1)1/4" NPS(M)
Bowl Capacity	17 oz.	34 oz.	17 oz.	34 oz.	34 oz.
Automatic Drain	STD.	STD.	STD.	STD.	STD.
Filter Element Kit (5 mic. reusable)	HAF-6	HAF-15	HAF-6	HAF-15	HAF-15
Air Filter Included	—	—	HAF-502	HAF-503	HAF-503
Quantity Air Regulators	—	—	1	1	2
Air Regulator Model	—	—	HAR-506	HAR-507	HAR-507
Air Gauges 0-100 PSI	—	—	1	1	2
Air Gauges 0-160 PSI	—	—	1	1	1
Shipping Weight	1 lb, 7 oz.	3 lbs, 1 oz.	9 lbs..	15 lbs.	18 lbs.
Optional Mounting Bracket	HAF-407	HAF-408	HAF-407	HAF-408	HAF-408



Large air inlet and outlet, plus large internal air passages, minimize pressure drop. No tools are needed to remove the quick release bowl or change the easy spin-off 5 micron filter element. Order replacement filter element from chart at left.

CleanAir Coalescer Filter-Regulator Units

DeVilbiss Ransburg CleanAir coalescer filters incorporate the latest in air line filtering technology. The primary function of the coalescer is to remove water, dirt, and oil from the system – down to .01 micron.

Oil, water, and dirt usually enter the air supply as the air is expelled from the compressor. As air enters the highly efficient coalescer, it is filtered through a borosilicate glass microfiber filter. This filter effectively traps fine oil mists, oil aerosols, and microscopic particles down to .01 micron.

The filter element is also equipped with a filter-change indicator. The indicator, visible at the top of the housing, changes from green to red to alert the operator when the element is overloaded and requires changing.

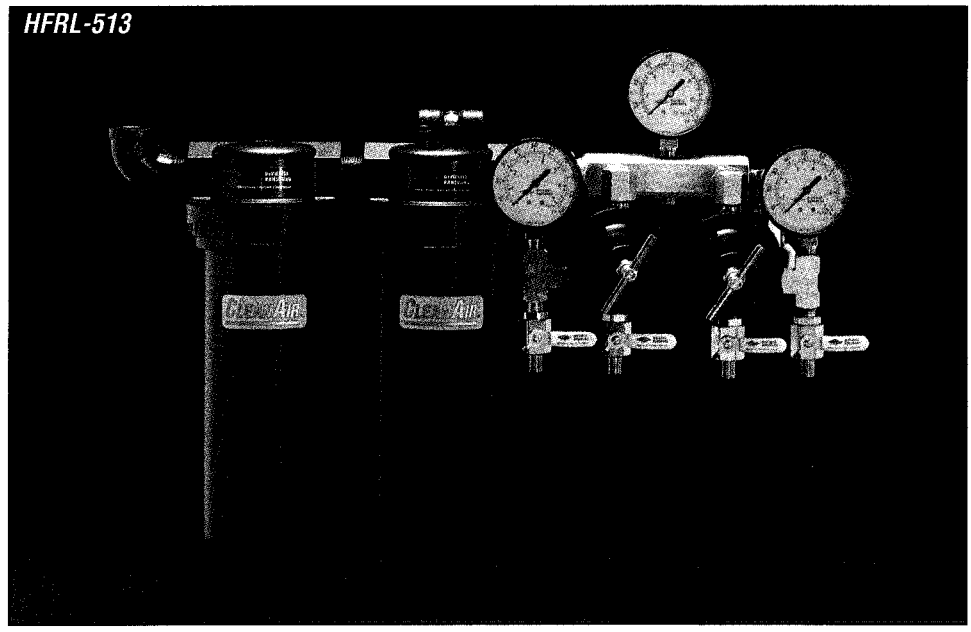
An automatic bowl drain, complete with a 6' drain hose, eliminates oil and water buildup inside the bowl.

Like the centrifugal filter, the coalescer features a quick-release bowl and spin-off element for filter changes without tools, plus large air passages for minimal pressure drop. An optional mounting bracket (HAF-408) is available.

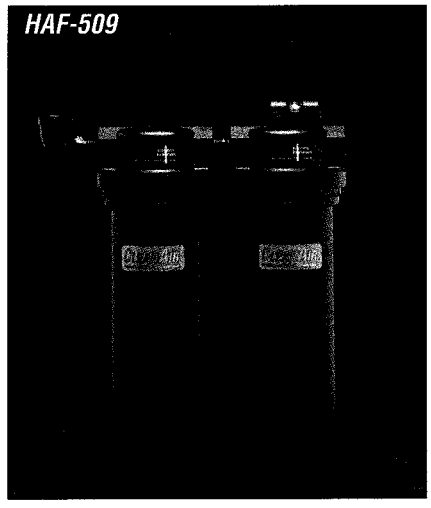
The HAF-508 is the coalescer filter only. In combination with the separator unit, there are three choices – the HAF-509 non-regulated unit and the two regulated models.

Service Literature:
SB-6-148-A

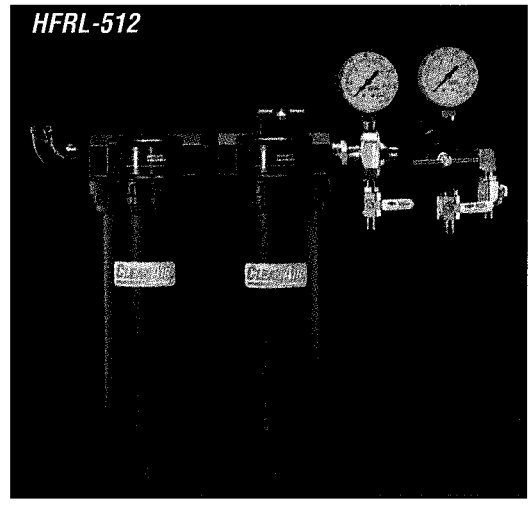
HFRL-513



HAF-509



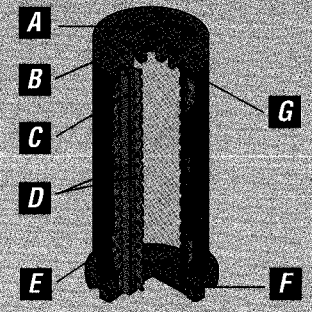
HFRL-512



COALESCER FILTERS MODELS/SPECIFICATIONS

	Non-Regulated Units		Regulated Units	
	Coalescer Only	Separator and Coalescer	Separator and Coalescer	
Specifications	**HAF-508**	**HAF-509**	**HFRL-512**	**HFRL-513**
Separator Filtering Capacity (in mic.)	5	5	5	5
Coalescer Filter Capacity (in mic.)	.01	.01	.01	.01
Flow Rate-CFM	150 @ 90 PSI	150 @ 90 PSI	80+	120+
Maximum Inlet Press.-PSI	150	150	150	150
Regulated Pressure Range-PSI	—	—	0-125	0-125
Maximum Operating Temperature	150°F	150°F	150°F	150°F
Inlet Port Size	3/4" NPT(F)	3/4" NPT(F)	3/4"NPT(F)	3/4"NPT(F)
Outlet Port Size	3/4" NPT(F)	3/4" NPT(F)	—	—
Regulated Outlets w/ ball valve	—	—	(2)1/4" NPS(M)	(4)1/4" NPS(M)
Non-regulated Outlets w/ ball valve	—	—	(1)1/4" NPS(M)	(1)1/4" NPS(M)
Bowl Capacity	34 oz.	34 oz.	34 oz.	34 oz.
Automatic Drain	STD.	STD.	STD.	STD.
Centrifugal Filter Element (5 mic. reusable)	—	HAF-15	HAF-15	HAF-15
Coalescer Filter Element (.01 mic.)	HAF-38	HAF-38	HAF-38	HAF-38
Quantity Air Regulators	—	—	1	2
Air Regulator Model	—	—	HAR-507	HAR-507
Air Gauges 0-100 PSI	—	—	1	2
Air Gauges 0-160 PSI	—	—	1	1
Shipping Weight	3 lbs., 2 oz.	6 lbs., 3 oz.	18 lbs., 2 oz.	21 lbs., 2 oz.
Optional Mounting Bracket	HAF-408	HAF-408	HAF-408	HAF-408

COALESCING FILTER ELEMENT



A *Captive o-ring seal gives an easy-to-fit protective seal.*
B *End caps in tough corrosion resistant materials.*
C *Pre-filter support fabric prevents filter media migration and increases element life.*
D *Stainless steel support screens provide rigid fail safe protection against accidental shock loads and high pressure drops in either direction.*
E *Anti re-entrainment barrier for collected liquid drainage prevents carryover even in shock conditions and is compatible with mineral or synthetic lubricants.*
F *Borosilicate glass microfiber filter media for high flow, high efficiency, quick drainage and low pressure drop.*
G *High strength epoxy sealant provides extremely strong construction and eliminates filter media bypass.*

CleanAir Three-Stage Desiccant Unit

Desiccant Air Drying System

The three-stage desiccant unit combines centrifugal, coalescing and desiccant filtration to provide the ultimate in clean, dry air. The first stage centrifugal unit removes most water, oil, and dirt particulates down to five microns. The second stage coalescing filter further filters out oil and water aerosols and smaller dirt particulate down to .01 microns. All remaining water vapor is removed in the third stage desiccant. This final stage will remove water vapor to a dew point of -40°F (which means the air won't condense out any more moisture unless the air is chilled below -40°F)!

Both the centrifugal and coalescing units include automatic drains to keep any water or oil from collecting in the bowls. The coalescer filter includes a pressure differential indicator to show when a filter change is needed, and the desiccant unit has an "indicator window" which changes color to show when new desiccant is required.

The DAD-501 comes completely assembled. It includes a 0-120 psi air pressure regulator and a built-in wall mounting bracket for easy installation.

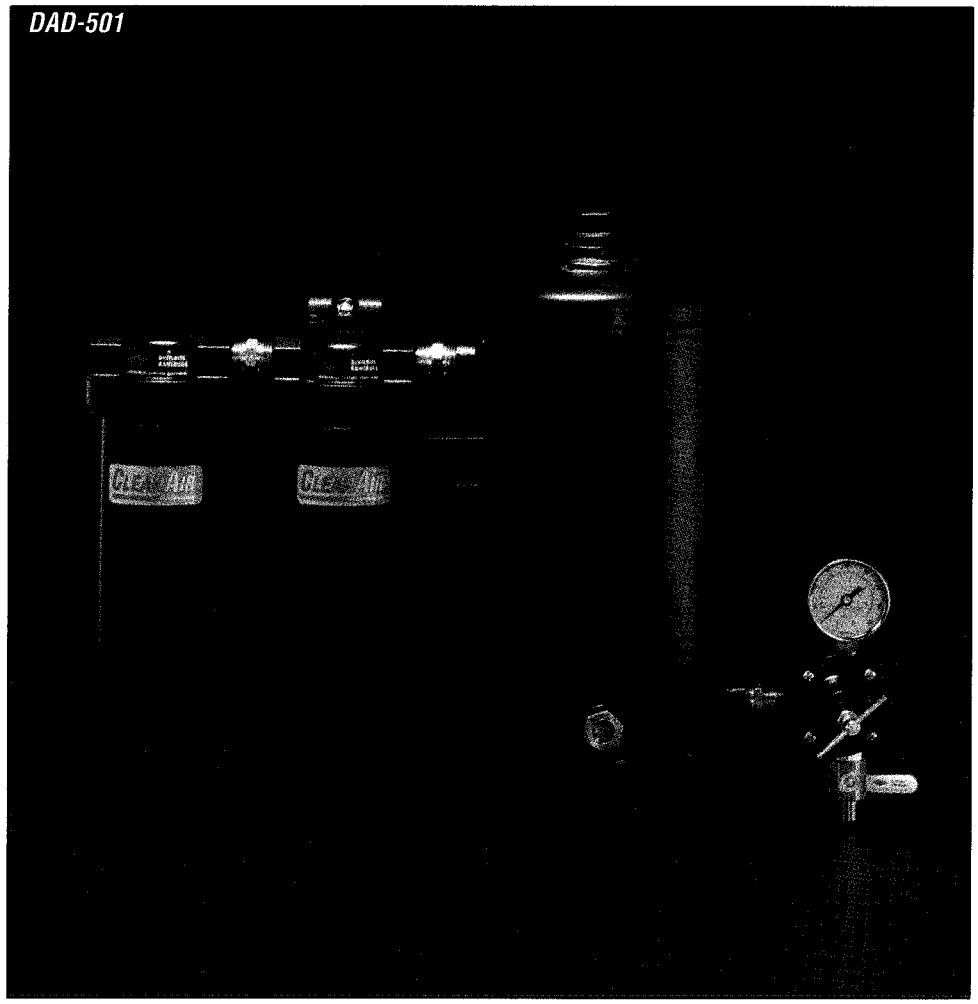
Please Note: The desiccant unit contains highly absorbent, low dusting desiccant beads that readily dry out all water vapor in the air. Due to the size and rated capacity, the DAD-501 is ideally suited for low to medium production. High CFM, continuous use conditions may require frequent desiccant change. To help determine the suitability of DAD-501 for your application, your DeVilbiss Ransburg distributor can complete a qualification checklist (DI-5005) and discuss it with you.

For the ultimate in clean, dry air, choose the DAD-501 system.

Service Literature:

SB-6-156-A: DAD-501 Desiccant System
SB-6-152-A: HAF-511 Coalescing Filter
SB-6-146: HAF-502 Centrifugal Filter
SB-6-144-B: HAR-506 Regulator

DAD-501



DESICCANT SYSTEM MODELS/SPECIFICATIONS

	*DAD-501 Desiccant Air Drying System**	*HAF-502 Centrifugal Filter Only*	*HAF-511 Coalescing Filter Only*	*HAR-506 Regulator Only*
Air Inlet	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)	3/8" NPT (F)
Air Outlet	1/2" NPT (F)	1/2" NPT (F)	1/2" NPT (F)	1/4" NPT (F) 3 ea.
Air Flow Capacity	25 CFM	100 CFM	55 CFM	50 CFM
Max. Operating Pressure	150 PSI	150 PSI	150 PSI	150 PSI
Automatic Bowl Drain	—	Yes	Yes	—
Filter Element/Desiccant	DAD-1 10# Replacement Desiccant	HAF-6 5 Micron	HAF-28 .01 Micron	
Wall Mounting Bracket	Included	—	—	—
Filter Change Indicator	Yes (Desiccant)	—	Yes	—

**Includes HAF-502, HAF-511, and HAR-506.*

FINISH GUARD™ IN-LINE FILTER

*Disposable In-Line Filter**

A final line of defense in further reducing any possible contaminants is the Finish Guard In-Line Filter. The disposable air line filter is mounted to the base of the spray gun or other air tool to remove any remaining water, oil, dirt and rust from the air line.

The patented Finish Guard is a high quality, high flow, solvent-resistant disposable air filter. With a "whirlwind" centrifugal action, incoming air spins inside the filter element, trapping water and oil droplets inside a reservoir chamber. Then the air flows through a multi-layered, high-efficiency filter media as any remaining water, oil or dirt is absorbed. Besides trapping impurities, the multi-layered filter extends filter life, so Finish Guard lasts up to 40% longer than other filters.

Finish Guard easily filters out debris from the air supply with a very low pressure drop. The filter's floating baffle automatically adjusts for changing air conditions. With 55% more air flow than other filters, Finish Guard is excellent for use with HVLP guns that require higher air flow.

Though not intended to replace more elaborate air filtration systems, the Finish Guard is low cost insurance. Filter life is approximately 10 days, depending on air conditions. If used as a stand alone filter, the product life would be less than if used down stream of an air filtration system.

In Line Filter Specifications

HAF-507-K36-I: 36 filters in a convenient dispenser carton

Threads: 1/4" - 18 Pipe

Maximum Operating Pressure: 125 psi

Operating Temperatures: 50°-110°F

Pressure Drop @ 80 psi w/20 SCFM: 2 psi

Liquid Contaminant: 1.5 fluid oz.

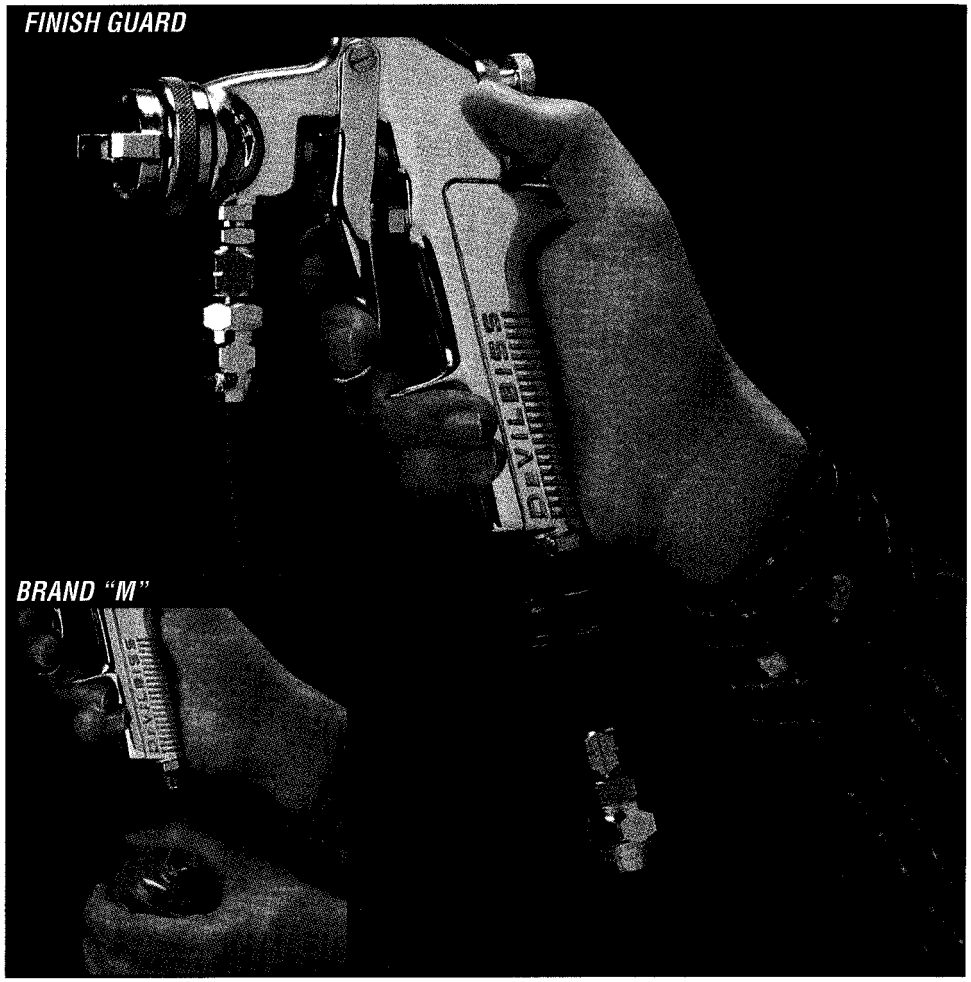
Housing Material: Tough, Solvent-Resistant Delrin®

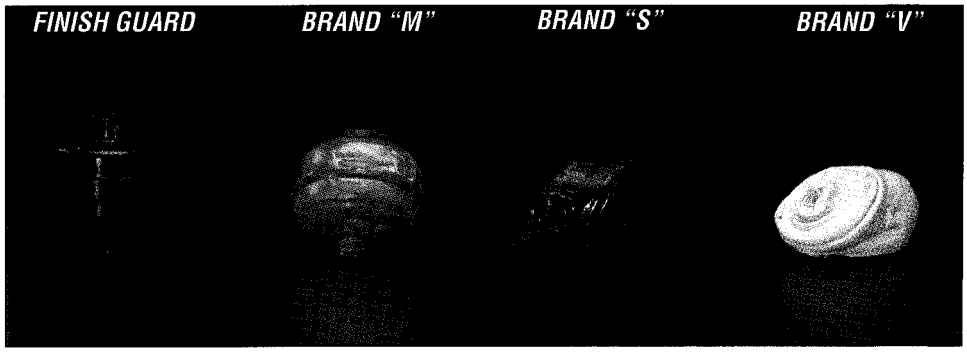
Service Literature:

SI-8-10-1-A

**U.S. Patent #5, 205, 849. Foreign patents pending.*

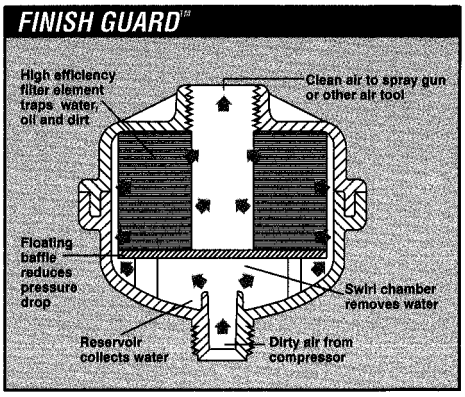
® Delrin is a registered trademark of Dupont.





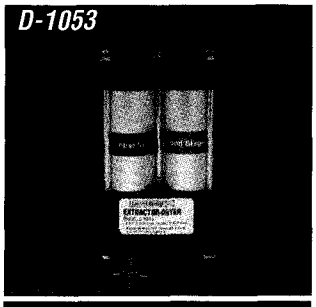
(Inset Photo)
Other disposable filters on the market are more likely to break at the point of attachment to the spray gun. The six reinforced ribs at the top of the Finish Guard make it stronger than other filters.
It may be disposable, but it's built to last, not to break.

(Above Photo)
Field testing has proven that the solvent-resistant, durable Finish Guard out lasts the others in your finishing environment. This test shows the result of DeVilbiss Ransburg and three others' filters after being immersed in solvent for 24 hours, demonstrating the solvent-resistant strength of the Finish Guard.

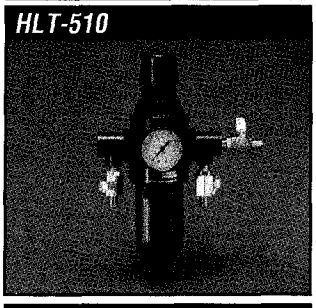

FINISH GUARD™
High efficiency filter element traps water, oil and dirt
Clean air to spray gun or other air tool
Floating baffle reduces pressure drop
Swirl chamber removes water
Reservoir collects water
Dirty air from compressor

CleanAir Extractor/Dryers, Filter and Air Regulators

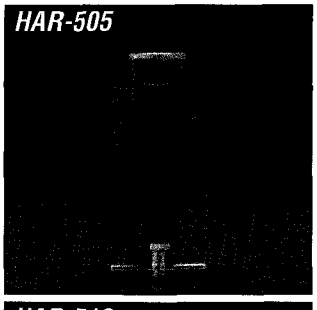
D-1053



HLT-510

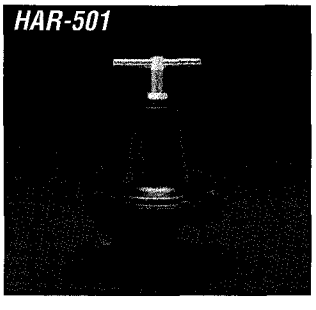


HAR-505



HAR-516

HAR-501



CleanAir Extractor/Dryer D-1053, D-1103

Works in three steps to remove dirt and water, even in trace amounts:

1. Large drops of water, oil and dirt are "knocked out" of air as it passes through stainless steel filter.
2. Water droplets fall out of swirling air in First Stage as it enters the "quiet zone" in bottom of chamber.
3. Remaining contaminants are trapped in a high density absorption filter.

- Filters can be easily replaced.
- "Honeycomb" in bottom chamber keeps water from returning to air stream.
- Draincock allows water to constantly drain from unit.
- Results in clean, dry, quality air.

CLEANAIR EXTRACTOR/DRYER MODELS/SPECIFICATIONS

Model	Max Capacity	Operating Capacity	Inlet/ Outlet	Max Press.	Working Press.	First Stage Filter	Second Stage Filter
D-1053	50 SCFM	50 SCFM	1/4" NPT(F)	250 psi	150 psi	D-401	D-402
D-1103	100 SCFM	80 SCFM	1/2" NPT(F)	250 psi	150 psi	D-411	D-412

HLT-510 Filter-Regulator

Large capacity, combination filter and regulator for use with all types of air operated devices requiring a clean, dry, regulated air supply. Combines all features of the individual regulator and filter into a single compact unit.

- Two ball type valves for regulated outlets – one main air outlet with ball type valve.
- 160 lb. pressure gauge.
- Mounting bracket is standard.

HAR-505/535/555 Air Regulator

General purpose regulators for line takeoff use or as integral regulator on pumps, pressure tanks and other air operated devices. Requires separate trap or filter in air line to remove moisture or dirt.

- Unique three position, non-rising adjusting knob.
- Removable plug and cap.
- All metal body; durable Delrin® cap and knob; Buna N diaphragm and disc.
- Accurate regulator mechanism provides precision air control.
- Self-relieving design.
- Both main line and regulated outlets available from same units.

HAR-516 Air Regulator

Economy regulator for use with high volume paint pumps and other high capacity air operated devices requiring a regulated air supply.

- Extra large flow ports for maximum performance.
- Die cast zinc body for durable, heavy duty service.
- Extra heavy, reinforced Buna N diaphragm for trouble-free service.
- Stainless steel strainer and renewable brass seat.
- Balanced disc and oversize orifice assures top capacity with stable regulation.
- Self-relieving type design.
- Bottom plug is hand removable.

HAR-501 Air Regulator

Extra sensitive regulator for use with precision control on pressure feed tanks or other dead-end applications. Can be used to control atomization pressure for one spray gun.

- Self-relieving type regulator.
- Tough, reinforced Buna N diaphragm for extended service life.
- 100 mesh stainless steel strainer.
- Removable bottom plug for easy service.
- Forged brass body and stainless steel or brass internal parts for long service.
- High ratio of diaphragm surface to orifice area provides stable uniform regulation.

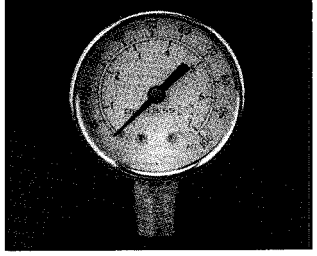
FILTER AND AIR REGULATORS MODELS/SPECIFICATIONS

Model	Maximum Capacity	Regulated Press. Range	Max. Air Inlet Press.	Max. Operating Temperature	Dimensions	Weight	Main Air Inlet Port	Main Air Inlet Size	Main Line Outlet Port	Main Line Outlet Size	Regulated Outlets Port	Regulated Outlets Size	Gauge Port	Gauge Size
HLT-510	100 CFM	0-125 PSI	250 PSI	120°F	11 3/8"H x 9 1/4"W	6 lbs	—	1/2" NPT(F)	—	1/4" NPS(M)	—	—	—	—
HAR-505	40 CFM	0-125 PSI	250 PSI	120°F	4 7/8"H x 2 3/8"W	1 1/8 lbs	1	1/4" NPT(F)	—	—	2,3,4	1/4" NPT(F)	—	—
HAR-535	40 CFM	0-125 PSI	250 PSI	120°F	4 7/8"H x 2 3/8"W	1 1/8 lbs	1 4	3/8" NPT(F) 1/4" NPT(F)	2 —	1/4" NPT (F) —	3	3/8" NPT(F)	—	—
HAR-555	40 CFM	0-125 PSI	250 PSI	120°F	4 7/8"H x 2 3/8"W	1 1/8 lbs	1	3/8" NPT(F)	2,4	1/4" NPT(F)	3	1/2" NPT(F)	—	—
HAR-516	160 CFM	0-125 PSI	250 PSI	120°F	7"H* x 3 1/4"W	2 1/2 lbs	1	1/2" NPT(F)	—	—	3	1/2" NPT(F)	2,4	1/4" NPT(F)
HAR-501	15 CFM	0-20 PSI	250 PSI	120°F	6"H* x 4 1/2"W	2 1/4 lbs	1	3/8" NPT(F)	—	—	2	3/8" NPT (F)	—	—

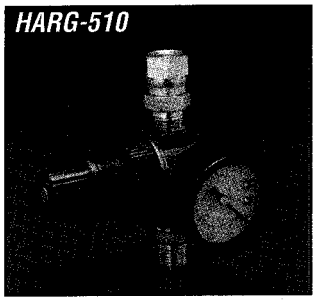
* *Varies depending on position of adjusting screw*

GAUGES AND AIR ADJUSTING VALVES

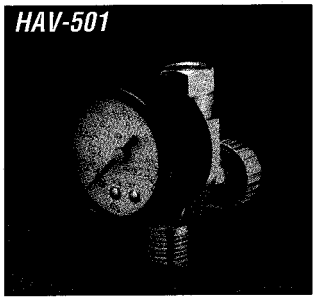
GA GAUGES



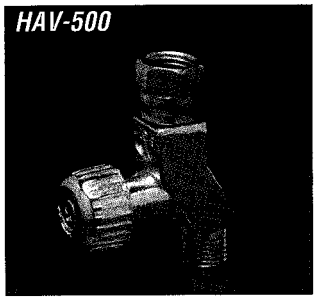
HARG-510



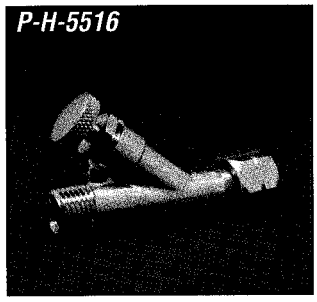
HAV-501



HAV-500



P-H-5516



GA Pressure Gauges

Convenient, standard gauges for accurate pressure reading. Can be used in any location where conditions of vibration or rough service exist. Glass covered dials, painted, dust proof cases; made from rust resistant materials.

GA-77 Retard Type Gauge

Very accurate reading in low pressure range. For use in critical pressure adjustments. Calibrated in ounces from 0 to 10 lbs.; in pounds from 10 to 30 lbs.

GA PRESSURE GAUGES

Model	Scale (Type)	Thread	Dia.	Inlet
GA-73	0-30 psi (A,F)	1/4" NPT(M)	2"	Bottom
GA-77	0-30 psi (A,F)	1/4" NPT(M)	3 1/2"	Bottom
GA-92	0-60 psi (A,F)	1/4" NPT(M)	1 1/2"	Bottom
GA-97-1	0-50 psi (F)	1/2" NPT(M)	3 1/2"	Bottom
	60-260°F			
GA-99	100-200°F(F)	1/2" NPT(M)	2 1/4"	Back
GA-202	0-200 psi (A,F,P)	1/4" NPT(F)	2"	Bottom
GA-211	0-200 psi (A,F)	1/4" NPT(M)	2"	Bottom
GA-288	0-160 psi (A,F)	1/4" NPT(M)	2"	Bottom
GA-313	0-15 psi (A)	1/8" NPT(M)	1 1/2"	Bottom
GA-316	0-160 psi (A)	1/4" NPT(M)	2"	Back
GA-333	0-100 psi (A,F)	1/4" NPT(M)	2"	Bottom
GA-336	0-200 psi (A)	1/4"NPT(M)	2"	Back
GA-338	0-160 psi (A)	1/8" NPT(M)	1 1/2"	Back
GA-339	0-60 psi (A)	1/4" NPT(M)	2"	Bottom

Air Adjusting Valves

HARG-510

Precise, lightweight air regulator and gauge combination provides a superior color matching capability. Fits any professional spray gun; comfortable for left and right-handed painters. Swivel adapter allows fast installation, and a lockring secures pressure settings to avoid interruptions for readjustments.

Maximum Air Inlet Pressure: 400 psi
Outlet Press. Adjust. Range: 5-100 psi
Gauge Port Size (two) in Regulator: 1/8" NPT(F)

HAV Type

Precise air adjustment valves that allow the painter to control pressure at the spray gun. Eliminates the need to estimate and compensate for pressure drop caused by length of hose running from the regulator. Fits all professional spray guns. A swivel top allows for easy and fast installation.

P-H-5516

This convenient accessory attaches directly to the spray gun air inlet. The large knurled knob adjusts air flow. Commonly used with spray guns, pressure tanks and pumps.

HARG-510/HAV/P-H-5516 AIR ADJUSTING VALVES MODELS/SPECIFICATIONS

Model	Air Inlet	Air Outlet	Net Weight	Gauge Range	Type
HARG-510	1/4" NPS (M) (Nipple)	1/4" NPS (F) (Swivel Adapter)	10 oz.	0-160 psi	Diaphragm Relieving
HAV-500	1/2" NPS (M)	1/4" NPS (F) (Swivel)	3.5 oz.	N/A	Straight
HAV-501	1/2" NPS (M)	1/4" NPS (F) (Swivel)	5 oz.	0-160 psi	w/gauge
P-H-5516	1/4" NPS (M)	1/4" NPS (F) (Swivel)	3 oz.	N/A	Straight

AIR VALVES MODELS/SPECIFICATIONS

Model	Description	Max. Operating Pressure	Material
VA-540	3/8" NPS (M) x 3/8" NPT (M)	500	Brass
VA-541	1/4" NPS (M) x 3/8" NPT (M)	500	Brass
VA-542	1/4" NPS (M) x 1/4" NPT (M)	500	Brass
VA-544	9/16"-20 (M) x 1/4" NPT (M)	500	Brass
VA-546*	3/8" NPS (M) x 1/4" NPT (M)	500	S/S & E. Nik
VA-548	1/4" NPT (M) (3 way)	5000	Carbon

**Electroless nickel and stainless steel for corrosive materials such as MEK, peroxide, split phase polyester, foams and latexes.*

Carbon = Carbon Steel S/S = Stainless Steel E. Nik = Electroless Nickel

DeVilbiss Ransburg
Industrial Coating Equipment
An Illinois Tool Works Company
Maumee, Ohio 43537

DeVilbiss Ransburg
Spray Equipment
A Division of ITW Canada Inc.
Barrie, Ontario L4M 6K1

DEVILBISS RANSBURG
INDUSTRIAL COATING EQUIPMENT

Form I-4057 1/93 Litho U.S.A.
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DeVILBISS RANSBURG

INDUSTRIAL COATING EQUIPMENT

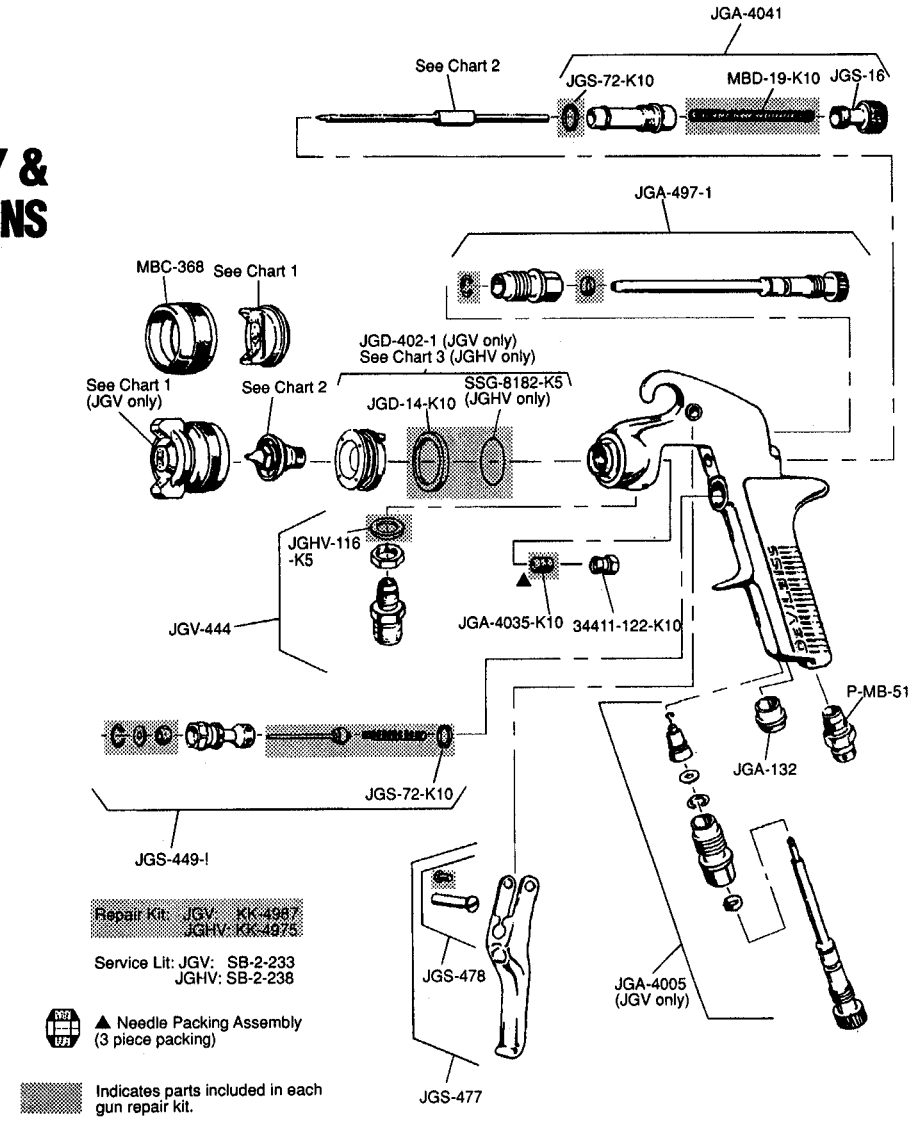
I-240A

Referral Charts

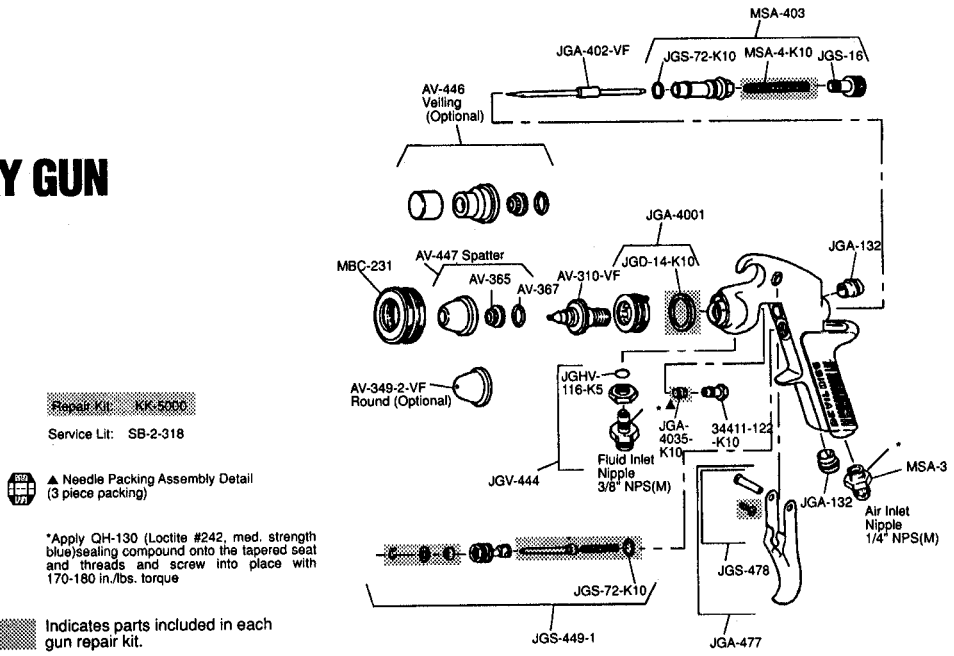
For use with the Wood Furniture Finishing Equipment Guide

The charts and drawings in this brochure are designed to provide additional information and accompany the Wood Furniture Finishing Equipment Guide. They are noted and referred to throughout the Guide.

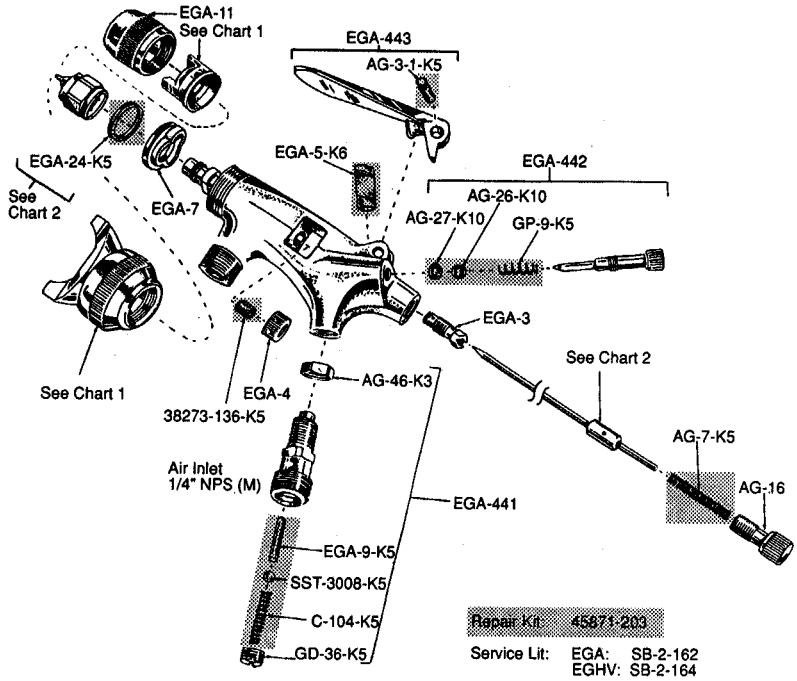
JGV-560 & 570 CONVENTIONAL AIR SPRAY & JGHV-530 HVLP SPRAY GUNS



MSA-5016 DECORATOR SPRAY GUN



Conventional and HVLP Spray Gun Replacement Guide

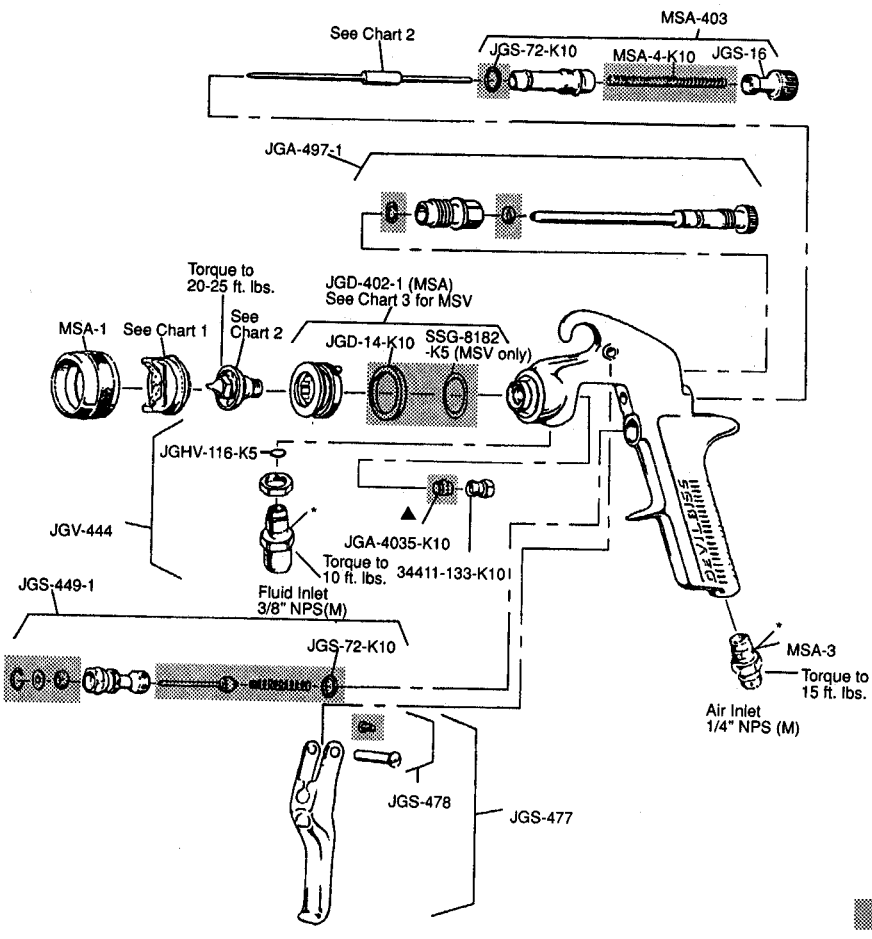


EGA-502 CONVENTIONAL AIR SPRAY & EHGV-530 HVLP SPRAY GUNS

Repair Kit: 45871-203

Service Lit: EGA: SB-2-162
EGHV: SB-2-164

Indicates parts included in each gun repair kit.



MODELS MSA CONVENTIONAL AIR SPRAY & MSV HVLP SPRAY GUNS

Repair Kit: KK-5000

Service Lit: MSA: SB-2-256
MSV: SB-2-237

▲ Needle Packing Assembly (3 piece packing)

* Apply QH-130 (Loctite #242, Med. strength (blue) sealing compound onto these threads.

Indicates parts included in each gun repair kit.

DIAGRAM B
Typical Solventborne Set-up with QMGT Galvanized (ASME Code) Tank and Rotary Agitator

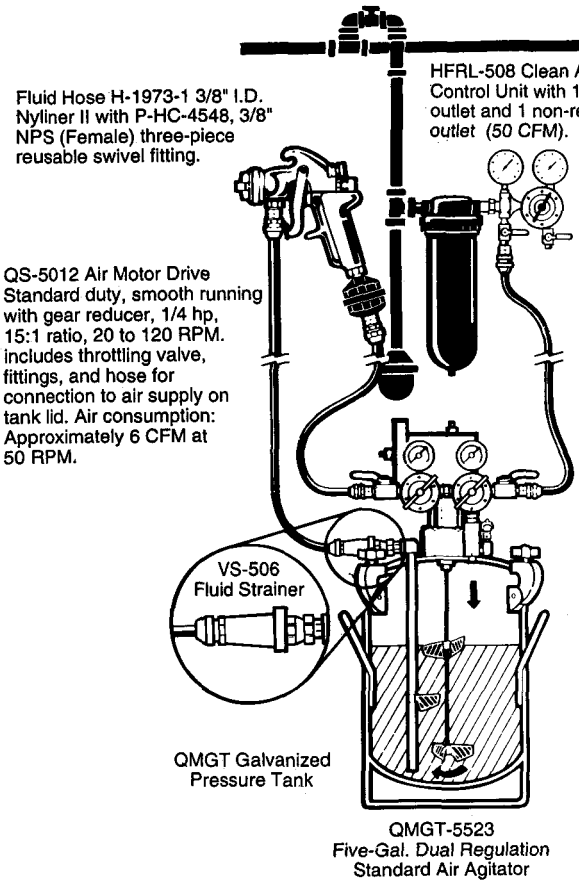
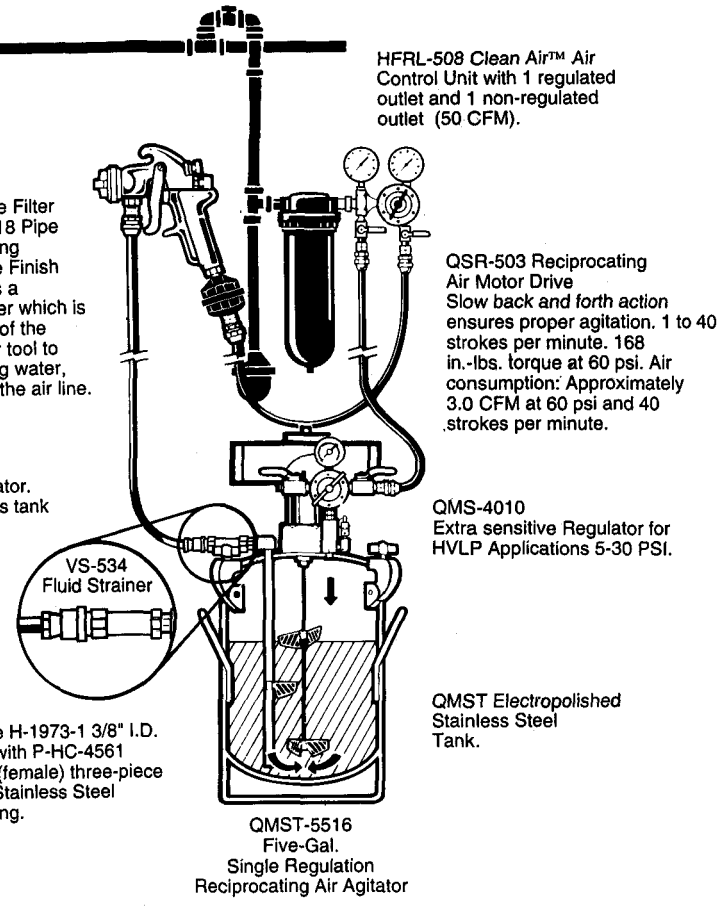

Fluid Hose H-1973-1 3/8" I.D. Nyliner II with P-HC-4548, 3/8" NPS (Female) three-piece reusable swivel fitting.
HFRL-508 Clean Air™ Air Control Unit with 1 regulated outlet and 1 non-regulated outlet (50 CFM).
Finish Guard™ In-Line Filter HAF-507-K36-I, 1/4"- 18 Pipe Threads, max operating pressure 125 psi, The Finish Guard In-Line Filter is a disposable air line filter which is mounted to the base of the spray gun or other air tool to remove any remaining water, oil, dirt and rust from the air line.
QS-5012 Air Motor Drive Standard duty, smooth running with gear reducer, 1/4 hp, 15:1 ratio, 20 to 120 RPM. includes throttling valve, fittings, and hose for connection to air supply on tank lid. Air consumption: Approximately 6 CFM at 50 RPM.
QMS-4006 One Gauge, one regulator. Regulates and indicates tank pressure.
VS-506 Fluid Strainer
QMGT Galvanized Pressure Tank
QMGT-5523 Five-Gal. Dual Regulation Standard Air Agitator

DIAGRAM C
Typical Waterborne Gun Set-up with QMST Stainless Steel (ASME Code) Tank and Reciprocating Agitator


HFRL-508 Clean Air™ Air Control Unit with 1 regulated outlet and 1 non-regulated outlet (50 CFM).
QSR-503 Reciprocating Air Motor Drive Slow back and forth action ensures proper agitation. 1 to 40 strokes per minute. 168 in.-lbs. torque at 60 psi. Air consumption: Approximately 3.0 CFM at 60 psi and 40 strokes per minute.
QMS-4010 Extra sensitive Regulator for HVLP Applications 5-30 PSI.
VS-534 Fluid Strainer
QMST Electropolished Stainless Steel Tank.
Fluid Hose H-1973-1 3/8" I.D. Nyliner II with P-HC-4561 3/8" NPS (female) three-piece reusable Stainless Steel Swivel fitting.
QMST-5516 Five-Gal. Single Regulation Reciprocating Air Agitator

Fluid Strainer Part No.	Maximum Working Pressure	Inlet Threads	Outlet Threads	Wetted Parts	Screen Part No.	Mesh Size	Micron Size
VS-506	300	3/8" NPS (F) Swivel	3/8" NPS (M)	Carbon Steel	VS-55 VS-56 VS-57	100 60 80	149 238 175

Fluid Strainer Part No.	Maximum Working Pressure	Inlet Threads	Outlet Threads	Wetted Parts	Screen Part No.	Mesh Size	Micron Size
VS-534	300	3/8" NPS (F) Swivel	3/8" NPS (M)	Stainless Steel	VS-58	100	149

"How to Order" QMG and QMS Tanks

QM X X -5 X X X

- Product Identification
- G = Galvanized; S = Stainless Steel
- T = Top Fluid Outlet; B = Bottom Fluid Outlet
- Completely Factory Assembled
- Tank Size: 2 = 2 Gallons; 5 = 5 Gallons; 10 = 10 Gallons; 15 = 15 Gallons
- Type of Regulators: 0 = None; 1 = One Regulator; 2 = Two Regulators; 3 = Extra-Sensitive (use with HVLP)
- Type of Agitation: 0 = None; 1 = Direct Drive (2-Gal. only); 2 = Hand; 3 = QS-5012 (standard); 4 = QS-5013 (heavy-duty); 6 = QSR-503 (reciprocating)

For Technical Assistance Call: 1-800-DEV-4448 (Continental USA Only)

DeVilbiss Ransburg
Industrial Coating Equipment
An Illinois Tool Works Company
Maumee, Ohio 43537

DeVilbiss Ransburg
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CHART 2 Fluid Tip & Needle Selection

Letters on Fluid Tip	Size		400 Series Stainless Steel			303 Series Stainless Steel			Spray Guns Used With					
									Conventional Air Spray			HVLP		
	In.	MM	Fluid Tip Part No.	Fluid Needle Part No.	Lapped Tip & Needle Part No.	Fluid Tip Part No.	Fluid Needle Part No.	Lapped Tip & Needle Part No.	JGV	MSA	EGA	JGHV(V3)	MSV	EGHV
AC	.110	2.8	AV-650-AC	JGA-402-C	——	AV-645-AC	JGA-421-C	JGA-4055-C	X					
D	.086	2.2	AV-650-D	JGA-402-DEX	JGA-4040-D	AV-645-D	JGA-421-DEX	JGA-4055-D	X					
E	.070	1.8	AV-650-E	JGA-402-E	JGA-4040-E	AV-645-E	JGA-421-E	JGA-4055-E	X			X		
EX	.070	1.8	AV-650-EX	JGA-402-DEX	——	AV-645-EX	JGA-421-DEX	——	X					
FF	.055	1.4	AV-650-FF	JGA-402-FF	JGA-4040-FF	AV 645-FF	JGA-421-FF	JGA-4055-FF	X			X		
FX	.042	1.1	AV-650-FX	JGA-402-FX	JGA-4040-FX	AV-645-FX	JGA-421-FX	JGA-4055-FX	X			X		
D	.086	2.2	——	——	JGA-4046-22	——	——	——				X	X	
E	.070	1.8	AV-650-E	MSA-402-E*	——	AV-645-E	MSA-402-E*	——		X			X	
EX	.070	1.8	AV-650-EX	MSA-402-DEX*	——	AV-645-EX	MSA-402-DEX*	——		X				
FF	.055	1.4	AV-650-FF	MSA-402-FF*	——	AV-645-FF	MSA-402-FF*	——		X			X	
FX	.042	1.1	AV-650-FX	MSA-402-FX*	——	AV-645-FX	MSA-402-FX*	——		X			X	
FF**	.055	1.4	AV-635-FF	MSA-402-FF*	——	AV-655-FF	MSA-402-FF*	——					X	
FX**	.042	1.1	AV-635-FX	MSA-402-FX*	——	AV-655-FX	MSA-402-FX*	——					X	
FF**	.055	1.4	——	——	JGA-4045-FF	——	——	JGA-4050-FF				X		
FX**	.042	1.1	——	——	JGA-4045-FX	——	——	JGA-4050-FX				X		
E	.070	1.8	EGA-608-E	AG-406-E	——	——	——	——			X			
F	.041	1.1	EGA-608-F	AG-406-F	EGA-609-F	——	——	——			X			X
G	.028	.7	EGA-608-G	AG-405-G	EGA-609-G	——	——	——			X			

* Fluid needles made of acetal material. ** For use with HVLP "Maximum Performer" nozzle combinations.

CHART 1 Air Cap Selection

No. on Air Cap	Air Cap Part Number	Pressure or Suction	Pattern Size	CFM	PSI	Retaining Ring	Spray Guns Used With					
							Conventional Air Spray			HVLP		
							JGV	MSA	EGA	JGHV(V3)	MSV	EGHV
28	JGHV-101-28	P	11"	18	10	1 or 2				X	X	
30	MB-4039-30	S	9"	12	50	4	X	X				
33A	JGHV-101-33A	P	9"	18.75	10	1 or 2				X	X	
35L	AV-1239-35L	P or S	2"-6"	4.8	50	2		X				
43	31767-043	S	8"-9"	15	60	1 or 2	X	X				
46MP	JGHV-101-46MP	P	11"-13"	22.5	10	1 or 2				X	X	
57	JGHV-101-57	S	11"	22	10	1				X	X	
58	AV-439-58	P or S	9"	6	40	4	X	X				
64HD	MB-4039-64HD	P	13"-14"	22	80	4	X					
69HD	MB-4039-69HD	P	14"	19	50	4	X					
80	MB-4039-80	S	13"	14	60	4	X	X				
86	AV-1239-86	S	10"	10.4	50	1 or 2	X	X				
264	31767-264	P	14"	18	50	1	X					
264L	AV-1239-264L	P	14"	18	50	2		X				
390	EGA-40-390	P or S	3"	3	30	3			X			
394	EGA-40-394	P or S	2"	4	32	3			X			
395	EGA-439-395	S	6"	3	40	4			X			
395HV	EGHV-439-395HV	P or S	3"	4.3	10	4						X
704	AV-1239-704	P	10"-12"	21	70	1	X					
704L	AV-1239-704L	P	10"-12"	21	70	2		X				
705	AV-1239-705	P	7"	8	25	1	X					
765	AV-1239-765	P	15"	22	80	1	X					
770	AV-1239-770	P	15"	22	70	1	X					
797	AV-1239-797	P	17"	21	70	1	X					
797L	AV-1239-797L	P	17"	21	70	2		X				

Retaining Rings: 1 - MBC-368 2 - MSA-1 3 - EGA-11 4 - None (Ring incl. w. cap)

CHART 3
HVLP Baffle (Used with JGHV(V3™) and MSV Spray Guns)

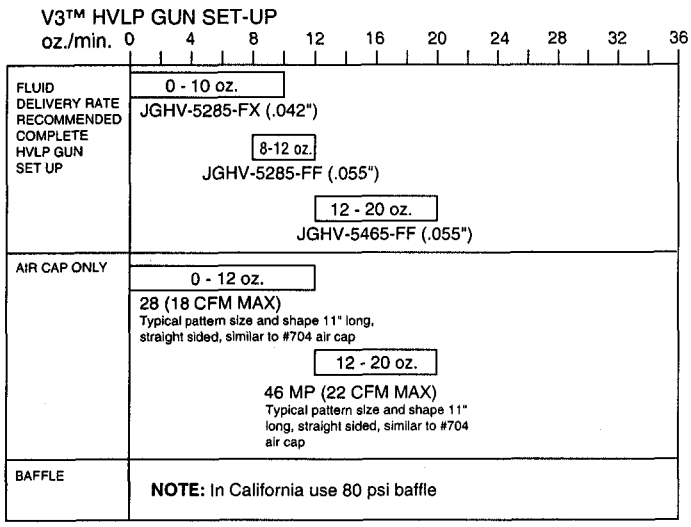
No. on Baffle	Baffle Part No.	Gun Inlet Pressure (To obtain 10 psi cap pressure)	HVLP Air Cap Used with
28-50	JGHV-450-28-50	50 psi	JGHV-101-28
28-80	JGHV-450-28-80	80 psi	JGHV-101-28
33-50	JGHV-450-33-50	50 psi	JGHV-101-33A
33-80	JGHV-450-33-80	80 psi	JGHV-101-33A
46-50	JGHV-450-46-50	50 psi	JGHV-101-46MP
57-65	JGHV-450-57-65	65 psi	JGHV-101-57

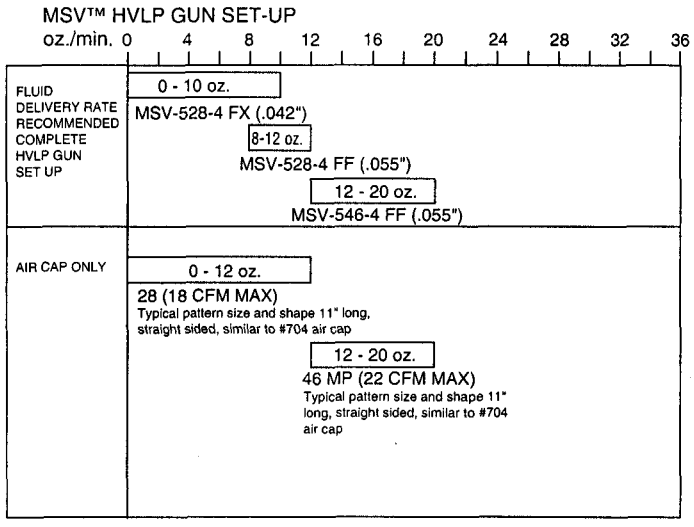
DEVILBISS RANSBURG
INDUSTRIAL COATING EQUIPMENT

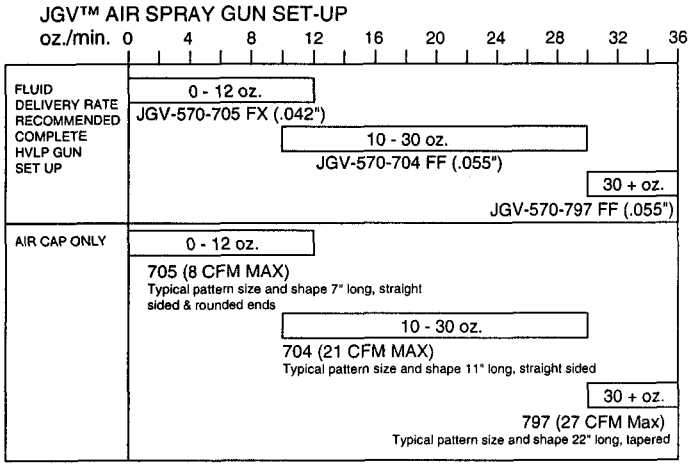
For Technical Assistance, Call:
1-800-DEV-4448

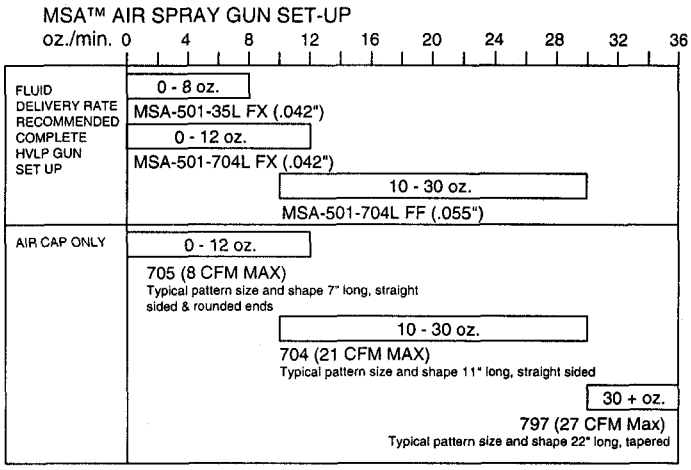
DISTRIBUTED BY:

DIAGRAM A


V3™ HVLP GUN SET-UP
oz./min. 0 4 8 12 16 20 24 28 32 36
FLUID DELIVERY RATE RECOMMENDED COMPLETE HVLP GUN SET UP
0 - 10 oz.
JGHV-5285-FX (.042")
8-12 oz.
JGHV-5285-FF (.055")
12 - 20 oz.
JGHV-5465-FF (.055")
AIR CAP ONLY
0 - 12 oz.
28 (18 CFM MAX)
Typical pattern size and shape 11" long, straight sided, similar to #704 air cap
12 - 20 oz.
46 MP (22 CFM MAX)
Typical pattern size and shape 11" long, straight sided, similar to #704 air cap
BAFFLE
NOTE: In California use 80 psi baffle


MSV™ HVLP GUN SET-UP
oz./min. 0 4 8 12 16 20 24 28 32 36
FLUID DELIVERY RATE RECOMMENDED COMPLETE HVLP GUN SET UP
0 - 10 oz.
MSV-528-4 FX (.042")
8-12 oz.
MSV-528-4 FF (.055")
12 - 20 oz.
MSV-546-4 FF (.055")
AIR CAP ONLY
0 - 12 oz.
28 (18 CFM MAX)
Typical pattern size and shape 11" long, straight sided, similar to #704 air cap
12 - 20 oz.
46 MP (22 CFM MAX)
Typical pattern size and shape 11" long, straight sided, similar to #704 air cap


JGV™ AIR SPRAY GUN SET-UP
oz./min. 0 4 8 12 16 20 24 28 32 36
FLUID DELIVERY RATE RECOMMENDED COMPLETE HVLP GUN SET UP
0 - 12 oz.
JGV-570-705 FX (.042")
10 - 30 oz.
JGV-570-704 FF (.055")
30 + oz.
JGV-570-797 FF (.055")
AIR CAP ONLY
0 - 12 oz.
705 (8 CFM MAX)
Typical pattern size and shape 7" long, straight sided & rounded ends
10 - 30 oz.
704 (21 CFM MAX)
Typical pattern size and shape 11" long, straight sided
30 + oz.
797 (27 CFM Max)
Typical pattern size and shape 22" long, tapered


MSA™ AIR SPRAY GUN SET-UP
oz./min. 0 4 8 12 16 20 24 28 32 36
FLUID DELIVERY RATE RECOMMENDED COMPLETE HVLP GUN SET UP
0 - 8 oz.
MSA-501-35L FX (.042")
0 - 12 oz.
MSA-501-704L FX (.042")
10 - 30 oz.
MSA-501-704L FF (.055")
AIR CAP ONLY
0 - 12 oz.
705 (8 CFM MAX)
Typical pattern size and shape 7" long, straight sided & rounded ends
10 - 30 oz.
704 (21 CFM MAX)
Typical pattern size and shape 11" long, straight sided
30 + oz.
797 (27 CFM Max)
Typical pattern size and shape 22" long, tapered

NOTE: Use the gun set-up (JGV-570-765 FF) when coating furniture with colored lacquers and painted enamel finishes in lieu of normal natural wood grain stained finishes.

ORDERING INFORMATION

V3 HVLP Spray Gun

JGHV -5XX X - XX

- Fluid Tip*: GX=.034", FX=.042"•, FF=.055"•, E=.070"
- Inlet Air Pressure**: 8=80 psi, 5=50 psi•
- Air Cap Number: 28, 33, 46•
- Basic Gun Model

* Standard tips are 400 series stainless steel. Optional 300 series stainless tips and needles are also available. Order AV-645-XX (tip) and JGA-421-XX (needle).
**For compressed air supplies less than 80 psi, order a V3 for 50 psi gun inlet pressure.
•For "Maximum Performer"

JGV Conventional Air Spray Gun

JGV- ____ - ____ ____

- Fluid Tip Size
- Air Cap Model
- Basic Gun Model

MSA Conventional Air Spray Gun

MSA- 50X - XXX - XX

- Fluid Tip (E, EX, FF, FX)
- Air Cap (704L, 264L,797L, 35L)
- Basic Gun w/ 1=400 grade stainless fluid tip, 3=303 grade stainless fluid tip

MSV HVLP Air Spray Gun

MSV- 5 XX - X - XX

- Fluid Tip (E, EX, FF*, FX*)
- 3=303 grade stainless fluid tip, 4=400 grade stainless fluid tip
- Air Cap (28, 33, 46*)
- Basic Gun

*For Maximum Performer. order only #46 air cap and FF or FX fluid tip

"How to Measure & Adjust Fluid Flow"

Shut off the atomization air to the gun. Set the fluid flow rate by adjusting the air pressure in the material container. Adjust the fluid flow in the following ways: Remove the air cap, aim the gun into a clean, graduated container and pull the trigger for 10 seconds. Measure the amount of material which flowed in that time and multiply times 6 (or flow for 30 seconds and multiply times 2). This is the fluid flow rate in ounces per minute. For standard finishing, it should be about 14 to 16 ounces per minute. If the flow rate is less than this, increase the air pressure in the container and repeat. If the fluid pressure exceeds 20 psi., install next larger tip and needle and begin again. If it is more than this, decrease the pressure slightly. When the flow rate is correct, reinstall the air cap.
***For HVLP Maximum Performer (46MP)**, since the design creates a slight back pressure on the fluid column, the above method will not accurately measure fluid flow. We recommend you use a material flow meter or weigh the material container before and after spraying.*

Air Cap Test Kits* For HVLP Guns

KK-4973 Air Cap Test Kit –
includes air cap and gauge, for use with #395HV air cap only.

KK-4974-28 Air Cap Test Kit –
includes air cap and gauge, for use with #28 air cap only.

KK-4974-33A Air Cap Test Kit –
includes air cap and gauge, for use with #33A or #33 air caps only.

KK-4974-46MP Air Cap Test Kit –
includes air cap and gauge, for use with #46MP air cap only.

** Air cap test kits may be required by some air quality agencies. These kits are supplied with a special air cap and test gauge to demonstrate actual pressure being used at the cap since it will vary depending on hose length between the air regulator and gun. This kit can be used as a quality control device for consistent spraying each day. The cap kit should not be used when finishes are being applied.*

Turn page for Diagrams B & C